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PEDIATRICS

A MONTHLY JOURNAL
DEVOTED TO THE
STUDY OF

Disease in Infants and Children

EDITED BY

WILLIAM EDWARD FITCH, M. D.

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PEDIATRICS

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EDITORIAL

CHILDREN VERSUS DIVORCE, A QUESTION FOR PHILANTHROPISTS.

The last census of the United States estimates that despite hindrances of both church and state, the rate of divorces to marriages had increased from one to thirty-four in 1870 to one in twelve in 1907. Prof. Wilcox in discussing this subject in the *Times*, Jan. 24th, 1909, says the ratio had further increased at that time to one divorce to ten marriages. This alarming condition of divorce with its ill effect upon the morals of the body politic, has drawn, not only the attention of the church, but all good people to the alarm which is being sounded. A prominent church paper commenting on this subject says:

"But why not accept a condition of free love and be done with it? Why keep up the hypocrisy of marriage, either by church or state? Why not, if the health authorities wish to know who are living together in a city and to keep a record of children, simply compel the man and his mistress to go to the justice of the peace, and say, 'We are going to live together for the present?' Why not set aside a large part of the city where huge communal houses with plenty of playground for children, can be erected? They will need large playgrounds, poor things, not knowing father and mother love. But it is between this condition of free love and a marriage system much freer than divorce than we now have, that the nation has soon got to make choice. And quickly too, for even now, some localities are becoming practically free love. There are women in New York who when they meet one of their husbands cannot always tell without thinking, if it is the one she is now living with. At some tables in fashionable restaurants it is unsafe to address a woman by the name you have known her by, unless you have met her within half a year, for she may have changed it.

"The plight of children is becoming pitiable. Keepers of private nurseries, hospitals, and even private schools will tell you pitiable tales. More and more 'dumping-grounds' for children of divorced parents are being required. What a sight that recently seen, in a New York court, of a little boy distracted, running back and forth, from his father to his mother, crying pitiably for love, while they snarled at each other in a divorce court. Laws are not going to stop it. There are too many people who want lax laws, to get strict laws. Refusal of church to marry will help a little, but not much, for there are justices of the peace who have no qualms about destroying the social fabric. Education in the sacredness of marriage is a good beginning. But people get married by impulse and rarely think of compatibility until it is over—especially in America this is true. Only one thing will help, and that is the inculcation of real Christianity. This works two ways, it establishes forbearance, charity, sweetness of temper, overlooking of little things in the household."

This religious journal is dubious of the beneficial effect of such legislation. "It will only be a law which expresses the composite result of all the laws now on the Statute books." And it is pointed out that "practically no divorce laws in any state have been able to check the growth of divorce." No help could come from such a source unless the laws were "ten times more drastic than any laws which now exist." Government officials are seriously discussing need of uniform divorce laws for the entire country. The Commissioners on Uniform Divorce Laws have been studying the problem and devising a marriage act that will suit all the states. It was proposed to invite all the governors and attorney-generals to a conference on uniform divorce laws. But even as the prospect of such a law draws near, the census reports on divorce dash one's hopes in its effectively operating against the growing evil. Four-fifths of divorces, it tells us, are by mutual consent, the suit being never contested by the defendant. In four out of five cases the divorce was obtained in the state where the marriage was performed. Strange to say, the divorce "colonies" in the West, while being perfect plague spots and disgraces to the nation, have had little influence in swelling the 820,000 divorces granted in the United

States since the Civil War. Another thing is, that although there is no doubt but that many marriages in our great cities are entered into with the understanding that it is simply a relation of a man to a mistress, and is soon to be dissolved, the vast majority of divorces come after ten years. There are very few cases where divorce is the result of an agreement before marriage. Nearly half of these decrees were for desertion, but desertion is generally simply a "fake" reason agreed upon by both parties. One-fifth were granted for drunkenness.

THE HEALTH OF SCHOOL CHILDREN.

The medical inspection of public school children was first begun in the 12th century and was first agitated in New York City in 1872, but not until recent years has medical inspection been carried out with anything like a national movement. At present only twenty-five states and the District of Columbia have medical inspection of their public schools. The total population of these states is 22,000,000 with a school population of only 4,000,000 children. No more valuable service, from an economic and humanitarian point of view, can be rendered to humanity and to the nation than the preservation of the health and morals of the children, and this cannot be accomplished without efficient medical inspection of the public schools.

Public schools the world over are becoming a vast clinic in which physicians explore for disease. Dr. Hall in Leeds, England, found half the children in a slum school suffering from rickets. In the Edinburgh school 40 per cent. had diseases of the ear. The British Dental Association, examining 10,500 school children, found only 1,508 sets of teeth, or 14 per cent., free from decay. In the Dundee schools half those examined had defects of vision. The Superintendent of Schools in Alameda, California, says that out of 3,600 pupils "more than three hundred are afflicted with physical defects observable even to the layman." The Bureau of Municipal Research, reporting for this country, says: "In rural as well as in city schools nearly one in three will have trouble with the eyes; nearly one in five will be mouth-breathers, because of too large tonsils or adenoid growths; every now and then there is one with nervous trouble or St. Vitus dance, and certainly more than one in every school who is obviously predisposed to tuberculosis."

Country children are found to be the worse off because they have the defects without the ready access to treatment. New York claims great advantage from this system, because the attention of a large number of people has been called to sanitary betterment by the action of the school inspectors in sending sick children home, and a general healthful condition has followed the lessening of contagious and infectious diseases among the children in the schools, who would otherwise have been exposed to numerous inhalation and infectious diseases.

Public schools no longer merely inspect children for contagious disease. They inspect for nearly every ailment that lowers efficiency. Some have children's throats operated on for adenoids; others have defects in vision corrected; others have dental work done; others provide nurses; others furnish meals at cost price; others donate tooth brushes; others send cards of instruction on hygiene and diet to parents; others co-operate with relief societies in giving shoes and clothing. Doubtless some will now treat for flatfoot.

The charge for all these services is borne by the community. One justification therefor is that if the work were not done under school direction much of it would not be done at all. Another is that it is done more cheaply than it could be under private initiative. In two fields the State exercises vast and elastic powers—in the regulation of public health and in education. These two fields are merging in modern school management and the result is an expansion of paternalism, the significance of which is not yet grasped, nor its end seen.

THE TEACHING OF THE ROMAN CATHOLIC CHURCH IN RELATION TO CRANIOTOMY AND ABORTION.

Patrick Cassidy of Norwich, read a paper on the above subject before the Connecticut Medical Association. He first brought out the important and trusted position held by a physician, saying that he should be faithful and eminently conscientious and of high personal integrity; then confined himself to emphasizing one point, "the respect for human life, its relation to the teachings of the Catholic Church and the commandment: 'Thou shalt not kill.'" He discussed abortion and craniotomy from a possible view-point of the mother, namely—"self-defence" against an attack upon her life by the child. Cæsarean section, Poro's operation, laparotomy and symphysiotomy are all approved both by science and the moral law if these can be safely attempted. On the clearest principles of ethics and God's law the Catholic Church has never permitted the murder of a child as a means to save the mother's life; killing can only be justified in repelling an unjust aggressor and in self-defence; the child is not an unjust aggressor against the mother! To preserve one's life is the first duty, but it may be the plainest duty to sacrifice one's life—therefore is it not the mother's duty to die rather than consent to the killing of her child? Are we ever justified in killing an unborn child in order to secure the mother's chances of living? The church's answer is No! Dr. Cassidy maintains that the human embryo has from the moment of conception a human soul. Premature labor and abortion are looked upon from the same firm view-point. In concluding Dr. Cassidy says "Morality is the seat of civilization; its principles are its life blood. They have at least lasted over 1900 years, so you must respect the eternal laws that direct the current of man's moral action, 'Thou shalt not kill.' "

STERILIZED MILK AS A CAUSE OF INFANTILE SCURVY

Dr. Walter Jordan writing in the *British Journal Diseases of Children*, Nov., 1911, reports a case of infantile scurvy due to sterilized milk. The case was an eleven months old baby presenting a history of having never been well, was wasting and always crying. It partook of but little food and never went but a few hours without vomiting.

On examination there were found to be no abnormal signs in the chest or abdomen, the spleen, however, being just palpable. There were slight signs of rickets. There was a very marked glossitis migrans, and it was while this was being inspected that an assistant catching sight of the lower gum, exclaimed "Why, it has scurvy as well." It was found that the only teeth cut were the lower central incisors, and that the gum was bluish and spongy about the left of these. In the upper jaw no teeth were erupted, but over the position of the central incisors were to be seen two large, bluish, spongy masses.

Further inquiry elicited that there had been bleeding from the mouth, and that two weeks earlier orbital ecchymosis had been observed.

The child had been fed from its birth on sterilized milk exclusively, except that for the last four months barley water, made with Robinson's patent barley, had been added, and that in the same period it had had two tins of Savory and Moore's food. Great care had been taken to get and to keep to the sterilized milk, as it was believed to be "the best."

Put on fresh cow's milk, with citrate of soda, orange juice and raw beef juice, the infant began to improve at once, and by May the 15th the gums had become absolutely healthy, while there had been no vomiting for four days. It still remains under treatment, as it has occasional attacks of intestinal catarrah.

It is particularly important to bear in mind scurvy as a cause of anaemia, crying when picked up, and general malnutrition in infants at a time when the conclusions of the Tuberculosis Commission are likely to lead to a greater resort than ever by the public and the profession to the use of sterilized milk and sterilized patent foods in infant feeding.

PEDIATRICS

ORIGINAL ARTICLES

THE VALUE OF A BIOLOGIC KEY IN THE EDUCATION OF THE CHILD.

BY
MARY SUTTON MACY, M. D.
Lecturer in Physiology and Pathology in Education, School of Pedagogy, New York University.

The infant is an object of speculative interest even to the man or woman who shuns responsibility, and one apparent reason for this attention is the universal appreciation of the possibilities latent in the small being under inspection. Upon those in charge of the early life of the individual rests a great responsibility, namely: that of seizing and employing advantageously every opportunity of infancy, childhood, and pubescence. If the adolescent and the adult are to be adequately trained to recognize and lay hold on future opportunities, and to meet and to handle efficiently the emergencies of normal life, then their early education must be, not only replete with opportunities well used, but also, the manner of coping with potentialities must be so continuously modified as to anticipate, as well as meet the constantly changing and enlarging conditions of environment and of individual powers.

A glance at the biologic evidence of organization and evolution, shows that the lowest orders of organic life are very simple. These forms consist, for the most part, of a single cell or a very small group of cells, which carry on the acts vital to the organism and usually sacrifice the individual life to continue the kind by a crude species of reproduction. Thus it may be said that the preliminary function of reproduction, basic as it is for the continuity of life, is most salient and requires all the stored energy and power of these simple organisms. It is true, that the ancient fundamental function of reproduction, though modified in method, is the one function most emphasized throughout the evolutional process and therefore may be considered as the primary member of a group of basic functions.

Ascending slightly in the scale of biologic organization, we notice a specialization of cells, and observe the appearance of another distinction and distinguishing function, namely, nutrition. Here has been evolved a second fundamental or basic function for the continuity of life. This time it covers the life of the individual, and is accessory to the primary reproductive function, which concerns the maintenance of racial continuity. Many, if not all, unicellular organisms absorb nutriment through the cell wall from their environment, but they apparently have no specialized function of nutrition, which can be recognized as such, by such striking changes in their protoplasmic structure, as those which are characteristic of reproduction in these simple organisms. Some of the more complex protozoa, for instance: the rhizopods, do surround their food with their body substance; and the infusoria, while possessing a mouth and an anus, also have an abdominal cavity surrounded by the body protoplasm; the medusae, among aquatic animals, have a mouth and anus, represented by the same central orifice, and also possess a system of canals, passing through the body, connected with the digestive cavity, and carrying simultaneously the nutritive materials and the oxygen laden water. Since the source of nutritive power was ultimately the food, and the obtainable supply from the immediate environment was quickly exhaustible, it soon evolved another function, as accessory to nutrition, to afford some means of adjustment to environment in order to preserve the life of the individual and therefore of the race.

Nutrition, evolved as accessory to reproduction, because basic as the source of supply of energy to the individual, without which racial continuity and reproduction were impossible, and nutrition developed motion as the third member of the group of basic functions. Allusion has already been made to the rhizopod's, which without muscular structure, surround their food, and other lower organisms, as the vorticella, for example, are possessed of well developed voluntary muscle fibers in their pedicles, and among the polyps may be found not only strong muscular bases to the actinia, and longitudinal and circular fibers on the body, but also some polyps have muscular structures accompanying the gastrovascular apparatus itself. The vital function of motion, though evolved as accessory to nutrition and therefore to reproduction, involved many new complexities, and eventually evolved a fourth basic function. First, motion provided a new and a very fruitful channel for the expenditure of energy, heretofore more or less of a monopoly at the command of reproduction; second, in demanding work, it produced a condition of waste of tissue requiring repair, and thus developed metabolism; third, in requiring oxidation and elimination as metabolic processes, it increased the complexity of the respiratory, circulatory, digestive and excretory systems and therefore complicated the problem of reproduction, and fourth, as a means of recognizing suitable from unsuitable foods in a changing environment, it evolved sensation and correlation as fundamentals of the fourth basic function, that of a nervous system. Most motile organisms possess some sense organs, which render them more or less susceptible to attraction or repulsion by various qualities or factors in their environment. For instance, in their antennae, the arthropods, possess organs which are considered as olfactory, and even such low grade organisms as the medusae have, many of them pigmented areas in the margin of the swimming bell, which are considered forms of eyes.

The original, simple form of asexual reproduction, or multiplication by cell division, becomes impossible in the higher organization of cell life. It gives place gradually (1) to different forms of asexual reproduction, (such as budding or sprouting and conjugation or concresence), and (2) to simpler forms of sexual reproduction, requiring two elements, semen and ovum, complementary each to the other. In some forms, as for instance in snails and tapeworms, the two productive elements are contained in the same individual organism (hermaphrodism) in other and higher forms it requires two organisms, male and female to complete the reproductive process. In like manner reproduction was varied and evolved from simple cell division, requiring apparently no marked prenatal periods, to the highest forms of uterine reproduction, requiring long periods of prenatal life and also involving lengthening periods of infancy following birth. From the early crude reproductive method evolved in due time the oviparous system; later, apparently because the increased complexity in the offspring demanded longer protection and greater advance in organic structure before birth, the intra-uterine type of reproduction appeared. Lower forms of organization multiply with amazing rapidity and in great numbers, but as the scale is ascended the relative number of offspring, per individual or per pair of individuals shows a tendency to decrease and therefore the individual product of reproduction assumes a relatively increased value if the species is to be continued.

Therefore, as the immediate results of the appearance of motion as a basic function of life there appears: (1) a tendency to produce a decreased prolific fertility and consequently to induce a greater relative value for the individual result of reproduction; (2) a markedly increased complexity in the nutritive or vegetative functions, and (3) a rudimentary nervous system. Nerves are wanting in protozoa; almost the first indication of a nervous system is found in the neuro-muscular cells along the margin of the umbrella of the medusae, and a further development is found in the sensory-motor mechanism of the antennae of the arthropods, with their more complex sensory and motor abilities. The neuro-muscular cells of the medusae, as arranged in a closed chain along the margin of the umbrella, suggests in an elementary way the spinal · cord of higher organisms. This suggestion is strengthened by the cell-like thickenings, sending out filaments to the pigmented sensory areas, which occur at intervals along this nervo-muscular ring. The nervous arrangement in the vermes also heightens the resemblance of such neural rings to the more highly evolved spinal cord; here is discoverable a single, or a double neural ring surrounding the head or the pharynx, from which a nerve trunk, (frequently two) passes longitudinally into the body and · forms a union with ganglia, corresponding in number to the body segments. The arthropods have a large nerve group above the pharynx and another below it connected by a commissure and from this lower ganglia an abdominal chain extends through the body. In the vertebrates, the nervous system is always placed near the dorsal aspect of the body, but in the lancelet, a vertebrate, it is not yet subdivided into brain and spinal cord, though in the cuttle-fish, a cephalopod, there has appeared a portion of the pharyngeal ganglia, enclosed in a cartilagious cavity, and suggestive of the brain and its skull of the higher forms of vertebrates.

In the human being the spinal cord has no individual specialized jurisdiction, over voluntary action; all motor impulses, said to be originated in the brain cortex, must pass to the cord, whence they are reissued through a new chain of nervous elements, to the muscles, and all sensory impulses must first come to the cord prior to being retransmitted to the cortical sensorium. The spinal cord is the oldest portion of the central nervous system, controlling, in the lower organisms, all the co-ordinations necessary between sensation and motion. The brain, as the youngest portion of the nervous system, has the power of controlling and co-ordinating the more complex sensory stimuli and their appropriate motor responses, developed to such an extent that a high degree of detail in governing expenditure of energy and delicacy of precision is insured and adapted to every emergency.

The highly organized nervous system therefore may be said to have evolved for itself two kinds of activity: (1) that which man has in common with all lower organisms possessed of nervous mechanisms or reflex action; controlled through the cord, or its bulk, and consisting of action as a definite response to a present and immediately operative stimullus, and (2) that which man shares only in a moderate degree with any other of the most highly evolved members of the animal world, or purposive action; controlled through the brain and consisting of action as a response to correlated and revelant stimuli but determined and controlled by a desired and forseen end or termination.

Man, as the very highest biogenic animal, most completely recapitulates the stages of evolution; in its early periods of development the human embryo is indistinguishable from that of any other creature; in about six weeks following conception it passes through various recapitulatory stages representing long periods of phylogenic history. Not only the prenatal but the postnatal life of the individual is a recapitulation of the development of the species, and therefore, since there must be reproduced in a few years the results of generations of evolution, the individual is, necessarily, an expugated edition of the racial history. Thus it results that the human child is a patch work of tissues, organs, and functions, some of which, biologically speaking, are very old and some of which are very young. The oldest are those primarily essential to racial and individual life, and these are fundamental, crude and heavy; the newest of them, more truly characteristic of altered and altering environments, are accesory, complex and delicate, and seem to be built upon the solid, rough-hewn, ancient foundation with all the detailed light and dainty tracery of a Gothic cathedral erected over an old Roman crypt.

The study of the biologic problem of the child requires the appreciation of the following facts:

1. The child is primarily an animal; therefore subject to the laws which regulate the conservation and expenditure of brute energy; the fundamental basis of his existence as a species is reproduction, by means of which life is continued, though the energy of life may change its form; the fundamental basis of his existence as an individual is nutrition, by means of which materials are supplied which operate to maintain the balance of energy and to sustain life.

2. The child is secondarily a motor animal; therefore subject to the laws which govern motion, and, in the course of his life history, evidences certain physiologic characteristics of sensation and motor response which are essentially similar to those characteristic of lower motile animals.

3. The child is thirdly a psychic animal; therefore subject to psychic laws; and in the course of the unfolding of the marvelous potentialities for selective thinking and reasoning, the child becomes an adult endowed with aspirations and yearnings for progress which appear to be distinctive of a psychic race.

In the light of such an evolutionary history as has been thus hastily sketched it will be reasonable to suppose that certain vital and fundamental functions appear well matured early in life, while others are held in check to give time and opportunity for certain accelerations in growth. In a nut shell, this is the biologic history of the species and such in a measure must be the life history of the individual, and therefore upon a similar frame or skeleton, should be built his educational structure. Millions of years have been consumed in the evolution of the human being from the primordial germ, and the individual, who, from his conception to death, epitomizes the developmental processes which produced and are reproducing him, must be subject to his physiologic growth to periods of alternate rest and metamorphosis, similar to those which have characterized the evolutional development of the species.

The entire process is from fundamental to accessory; and it is to be noted that which is primarily fundamental tends, for the economy of energy, to become automatic; while that which is primarily accessory tends, for the progress of evolution, to become fundamental and therefore, by inference, tends toward automatization. The higher the evolution, the more numerous and diverse become the paths for expenditure of energy and therefore, the greater the necessity for economy wherever possible. The further progress advances and the more elaborations of functions which result, the greater becomes the complexity of the reproductive problem. Increase in the complexity of reproduction results more or less in a shifting of the order of maturity in functions and consequently in the higher complex organizations the vegetative and motor powers reach a high degree of maturity before reproduction is physically possible. Then, in man follows a critical period of readjustment of balance and a final maturing of the psychic nature.

It seems comparatively simple to arbitrarily divide the child's life into three year periods, during which we may say; "Such and such a function is fundamental to this era;" but we must bear clearly in mind that the human body is a very complex mechanism and that, though some function or functions may appear emphasized at certain periods, all the functions, accessory as well as fundamental, claim their share of individual attention, and involve frequent allusions and alterations, which may—to the superficial observer—appear to question the validity of the fundamental to accessory theory as here outlined. The child in its early postnatal life is predominately vegetative, but it still uses its muscles and its brain, and because the growth and care of the viscera demand the bulk of our attention, does not authorize us to think of the child as a nutritional organism only, nor allow us to ignore or even minimize the importance of these accessory motor and psychic functions which are equally characteristic of the age.

As, in the course of biologic history, the motor function developed as an accessory to and served to strengthen and reinforce the vegetative functions, and was, in turn, matured by its accessory the neural function; so, in the course of the educational history of the individual wisdom dictates the use of each accessory system as it appears, for the maturing of each of the fundamental systems as are already present. If the educator bears in mind that (1) in evolutional history it was the fact of inability on the part of existing fundamentals to cope with the problems of living, that caused the appearance of accessory functions, and (2) in the human being that, though fine adjustment comes largely through psychic superiority, the success of education must rest upon the quality and thoroughness in the training of the successive fundamentals by the use of their respective accessory functions, he will come to a more complete understanding of the fact that the child is not a mind to be cramed with unassimilable abstractions, but an animal, possessing accessory mental capacities, which are at once a proof of his evolutional origin, and a promise of his evolutional destiny.

The evolutional or biologic succession in racial and in individual development furnishes, therefore, a good key to the solution of the problem of an educational method based on physiological development. A large part of his biologic history is epitomized for the human infant before birth, while growth is to a large extent free from any untoward interference with Nature's wise selection of biogenic short cuts and developmental necessities. The prenatal evolutional facts and the prolongation of human infancy are vital to the progress of the race, and have their chief significance in the relative importance of the individual human unit and its sociological effect. "Unto whomsoever much is given, of him shall much be required."

The postnatal history of the child divides itself into the following three-year periods quite naturally, and from an educational point of view, quite effectively: (1) vegetative, essential for the maturity of certain fundamental nutritive processes, though characterized by equally important motor and psychic phenomena; (2) impressive, seemingly a rest period during which the sensory mechanisms assume a sponge-like quality of drinking in experiences and are most fundamental to rational growth; (3) expressive, a period of marked motor activity, characterized by vigorous expression and intense restlessness, both physically and mentally; (4) receptive, a second apparent rest period before the next stupenduous metamorphosis, characterized by a real receptiveness, which refuses to be expressive during the period, an era during which any squeezing of the child's mental sponge, *i. e.*, the brain, to discover what it may have absorbed, results in negative satisfaction for the investigator. A time during which it is wisest "to let well-enough alone" provided the fundamentals of the earlier periods have been wisely used and developed; (5) the physiological age, which follows, marks the maturing of the reproductive power, when the balance of other fundamentals have been struck. This metamorphosis is so critical and so thorough as to revolutionize the child's physical body and also his psychic capacities; forcing during the period is destructive, not only of former nursing but also of future promise and, verily, the blossom of life may be considered "nipped in the bud," if marred or shattered now; (6) the psychological age, which follows is also an apparent rest period, during which a new balance of powers is being found by the adolescent child, prior to blossoming into the full adult powers; (7) the idealistic age, shows marked mental activity all too frequently of a negative rather than recognizedly positive kind, but unquestionably the psychic capacities are the fundamentals of the era and their adequate education is essential to the development of the sociological individual which modern society requires as the ideal and toward which evolution appears to tend.

The physician, as well as the educator, who will study the fundamental and the accessory functions of each era of the child's life and adopt them to practical purposes will be successful beyond the wildest dreams of our ancestors in promoting social progress and social evolution.

101 West 80th Street, New York City.

MEDICAL INSPECTION OF SCHOOL CHILDREN: AIMS AND RESULTS.

BY

P. B. BROCKWAY, M. D.

Toledo, Ohio.

The idea of medical inspection ought surely to appeal to the thought of all parents, and especially teachers, for the work should offer suggestions for alleviation of some of the teachers' trials with children.

A teacher may have the feeling that medical inspection is a magic wand that has only to be waved in order that genii will work some miracle on her stupid child and cause him to become a second Solomon. However, medical inspection is only the application of well tried and proven medical ideas—no typical miracles, but only the expected—yet often wonderful results do occur.

The opportunities for child study in schools was not appreciated until a comparatively short time ago. But it is true that the possibility of doing good and raising the standard of citizenship through a routine examination of school children is great. One man has aptly said that "the time to study man is in childhood and the place is in the public schools." And this is especially true if we hope to benefit the next strata of adults, for 85 per cent. of our children leave school at the age of 14, never to return.

The work is the most ideal conservation, and if it results in giving the foundation for strong constitutions that will decrease the number of the 100,000 school children that are annually carried off by preventable disease, surely great good will be accomplished.

That medical inspection has been assumed by school boards is natural, for school attendance is mandatory, and health responsibility of children while in school, follows. School boards realize that a sound mind in a sound body gives the greatest opportunity for receiving the most value from instruction and study.

The first work in the United States was begun in Boston in 1894. Other cities have followed until now 443 have some form, but only 214 have a system that provides for complete physical examination by physicians in the employ of the Board of Education.

In Toledo an impartial examination is assured, because no one of the staff is allowed to treat a case of which he learned through the school work. The inspectors try to detect any condition that, in their estimation, will retard mental or physical growth and, by notifying the family physician through the parent, hope to have detrimental conditions relieved.

To secure results a nurse is necessary, for she visits the home, which must be regarded as the point at which the physical welfare and hygienic control must be secured and maintained. She explains findings and urges that suggestions be acted upon.

The nurse is a very important part of the system, for she has to meet and solve the hygienic conditions; she has to educate parents as to the value of nutritious food and fresh air; she has to take the children to hospital or dispensary and generally to smooth over the troubles that the inspector stirs up.

The prevalence of contagious diseases caused the first medical inspection to be instituted and the reason was a good one, for it is a well known fact that contagious diseases increase enormously during the school term. Since the introduction of medical inspection in the Boston schools the decrease of contagious diseases has been marked, for there is now only one-third as much diphtheria and only one-sixth as much scarlet fever. In Toledo the results have been quite as good, for, during the period from November to June of the year prior to inspection, there were reported 2566 cases of scarlet fever, diphtheria, measles and chicken-pox, yet last year during the same period, there were reported to the Health Department only 681 cases.

This fact of having only about one-fourth as many contagious cases must appeal to the teacher, attendance officer and parent, as well as physician, if they are of the progressive type who believe in real preventive medicine.

The sensational reports concerning pathological conditions of nose and throat or, more properly speaking, large tonsils and adenoids, have been but little overdrawn for the report of the examination of 13,200 of our children shows that tonsils were considered too large for health in 32 per cent. while adenoids were believed to be present in 21 per cent. Now such conditions are astounding and, while some parents and some doctors are prone to say the child "will outgrow them," yet we know large tonsils and adenoids are mighty elements in causing dull or sluggish brain activity, for any condition that interferes with the oxygenizing of the blood retards health. Even though a child can and often does overcome such a handicap it is wise to assist kind Nature and have the obstructed passages cleared out. Such has been done by many parents, more at present than at any previous time, and the results are shown in the bright eyes and freshened intellects. These detrimental obstructions, as a rule, are the result of living in superheated, de-humidified and poorly ventilated homes. The virtue of normally moistened air was perfectly demonstrated last year in our first fresh air room where children who were badly affected at the beginning were almost normal at the end of the school term.

The teeth have been found in need of care in 34 per cent. of our children, treatment has been urged and stimulating sermons delivered on the value of dental hygiene both from a cosmetic view point and that of general health.

Among those examined, defective vision was found in 17 per cent. and defective hearing in six per cent. As one might expect, prompt attention was given to cases of defective vision and the standard of scholarship has been raised in proportion. Defective hearing, when resulting from abnormal condition of throat or nose improved after proper treatment had been given.

Our examinations have included a search for abnormalities of lungs, heart, spine, lymph glands and bones and, when found, these have been reported to parents and generally favorable results have been secured by appropriate treatment.

Skin diseases are frequent and these, together with the parasites of body and head, are treated at school. By this method we keep a child in school and cure him without endangering the welfare of his associates. Personal hygiene has vastly improved, due perhaps to a fear of our shower baths and head treatments, which are used as a penalty.

The scope of the work is broad, and I believe, is to be credited with the improvement of school ventilation and lighting, also general school hygiene through the installation of sanitary drinking fountains, liquid soap containers and individual paper towels.

Toledo teachers have given nothing but encouragement to the work, and in many cases, have used their best efforts to have a child provided with needed attention.

I wish to refer to our work along "open air" lines with children who either have some disturbance of the respiratory organs or who come from homes where they are exposed to tubercular infection. This work is greatly needed, for, as one writer aptly says: "The masses of people do not know how they breathe, do not know why they breathe and do not know what they breathe."

Last year a room was devoted to such children, 13 being the average attendance and there, with the windows open and working in a temperature of not over 50°, they did creditable work and completed the year with stronger bodies better fortified to combat their tubercular tendencies and home environment. This year the most ideal open air school in the country was opened. Here incipient, but not active cases of tuberculosis are receiving an education not only along book lines but also as regards hygiene and measures for counteracting disease.

The pupils' gain in weight, health and vigor makes it reasonable to expect that many of them will become perfectly healthy and go out into life to serve as aids in the combat with one of our dread diseases.

Medical inspection does help those children who are backward and dull due to physical abnormalities, but the feeble-minded or "human misfits," as Woods Hutchinson calls them, are a problem for special classes and training along manual lines. Their relation to medical inspection is one of diagnosis only and for that some very interesting psychological tests have been devised so that now, we have a method for measuring intelligence that can be relied upon. These tests are of great value when we are called upon to decide whether a bothersome know-nothing pupil should be taken from a regular class room, where he is a handicap to the rest, and placed where a suitable kind of training can be given him.

A teacher is not employed to teach moral precepts but there is no question as to her influence when exerted for the betterment of a child's character.

The fact is certain and when we realize that from our children of today the criminals and immoral women of tomorrow will be drawn, it would seem there is almost an obligation that the teacher co-operate with parents and physicians in making a strenous effort to lay a sane foundation for the proper knowledge of the laws connected with sex.

At present there are few school systems in this country that endeavor to teach the fundamentals of life at the early ages when there is the humanly natural inquisitiveness, but I firmly believe, as do men and women all over our land, that the time will soon come when teachers will impart to children a knowledge of the real meaning of life. They will do this in such a way that a child will absorb the facts of his existence naturally and not have to wait to be misled and misinformed by vicious and degenerate companions.

I hope this statement does not seem to imply a usurpation of the duty of another, for it is only intended as an aid to the solution of the most vital problem of our day—the problem of social diseases.

Our children are taught that honor and truth are actual, workable and profitable elements in life, yet we leave the most important and fundamental side of life untouched.

To meet such a situation all teachers should be trained to incorporate modified biological ideas in all their work so that during a child's school career the pupil will be given a comprehensive course concerning the laws of human life and value of clean thought and self control.

The details of the method of instruction must be worked out with care and deliberation for such a plan of instruction is distinctly contrary to the present day attitude toward the problem.

If such work is coupled with the efforts of conscientious parents and zealous physicians there will result the greatest blessing of perfect health and happiness, to the little ones, in whose lives we are all interested and earnestly striving to make better.

THE PATHOLOGY AND TREATMENT OF WHOOPING-COUGH.

BY
CHILTON THORINGTON, M. D.
Montgomery, Ala.

The sparce attention given to whooping-cough by both pathologist and internalists is probably responsible for the present views held by the lay that whooping-cough is a negligible disease. The pathologist states that with the exception of a catarrhal condition of the upper respiratory tract the disease is without pathology, and the internalists dogmatically affirm that for whooping-cough we have no certain remedy but—it being a self limited disease—needs only to be turned over to *vis medicatrix natura* which, in time, or a-time-and-a-half, will terminate itself with air, food and more time.

The pungent interest directed towards some of the other diseases could secure for whooping-cough a much needed revision. The name whooping-cough itself is regretable, and is but a single example of unfortunate nomenclature, emphasizing, as it does, the inadequateness of terminology when the name of the disease is based upon any other concept than that of its pathology. It is too often the habit of physicians to reserve a diagnosis of whooping-cough until the advent of the so-called "whoop," which is obviously both unscientific and dangerous, as many cases do not whoop at all, or when they do, not frequently until after the catarrhal stage, which represents the most contagious period of the disease. Therefore, to diagnosticate whooping-cough by its whoop alone may relieve the physician of a portion of his ostensible responsibility, but in reality, constitutes a technical evasion of his moral obligation, which necessitates the patient resting in a position of false security, thereby robbing him of every advantage of early treatment, as well as others of protection afforded by prompt isolation.

Whooping-cough is endemic in most large cities, and epidemic on various parts of the globe. There seems to be some relation between it and measles—the one frequently following the other. The state of health is claimed by some authorities to influence susceptibility—that is, those already weakened by process of other diseases, more easily fall prey to infection; but in our locality the previous state of health does not seem to influence susceptibility so much, *but is of prognostic moment*—the young infant and the weaklings give to whooping-cough its maximum mortality. The healthier the child, greater the runabout.

Recent vaccination against small-pox seems to protect somewhat against infection with whooping-cough, especially those cases followed by pronounced constitutional disturbances. Should whooping-cough be contracted, to the contrary notwithstanding, the cases certainly are of milder nature. I feel convinced that there is something in it, although no reason based upon etiologic phenomena has been given. However, it is true that certain members of the flora conjugate with other members—forming a symbiosis, if not a composite biologic entity.

The number of cases of whooping-cough developing soon after railroad journeys are too frequent to be considered accidental. It is probable that drafts, over-heating, smoke and dust furnish favorable mechanical agencies for the induction of catarrhal processes, which, in turn, invite the growth of bacteria, causative of the disease.

At time of epidemic, or with a history of exposure, whooping-cough should be diagnosed without much difficulty, but sporadic cases may hold many symptoms common to other diseases, *e. g.*, acute bronchitis, influenza, tuberculosis, tonsillitis and adenoids.

In differentiating whooping-cough from any of the above named diseases the blood picture of this disease is so constant as to be of much diagnostic value. An appreciable increase in the leucocytes is so early in its appearance that it should be our duty to make a leucocyte count in all cases with cough, accompanied with a catarrhal condition of the upper respiratory tract, with negative chest signs.

Bronchitis may so closely simulate whooping-cough as to admit of only a provisional diagnosis, which may be revised with appearance of lacking symptoms. In bronchitis the underlying cause, if ascertainable, is good diagnostic information. The character of the cough is not quite that of whooping-cough, and the physician seldom makes a mistake on the cough alone. In whooping-cough auscultatory signs are wanting, while in bronchitis they are not lacking. In whooping-cough there is decided and early leucocytosis, while in uncomplicated bronchitis the leucocytes are not increased.

Influenza, of catarrhal type, may preclude the possibility of an early diagnosis in absence of bacteriological aid. The finding of the Pfeiffer bacillus, and a normal leucocyte count, should be sufficient data for the exclusion of whooping-cough.

Tuberculosis in infants, and young children, may cause parents to regard the disease as that of whooping-cough, their suspicions being based upon symptoms closely resembling that of whooping-cough; indeed, I have seen two cases that were only diagnosed by finding the tubercle bacilli. The following case is of interest:

Patient, white female, age eleven months.

Family History.—Father chronic pulmonary tuberculosis. Mother non-tuberculous, and otherwise healthy.

Course of Disease.—Infant normal at birth. Continued vigorous, and was well nourished up to six months of age. At six months it began to lose strength and flesh, and developed some cough. The mother thinking that possibly her milk was not sufficient for the infant's demands supplimented the breast milk with modified cow's milk. Notwithstanding additional nourishment it did not improve, but rather steadily lost ground. The cough that had been noticeable for a few weeks now began to be paroxysmal, and worse at night. There was not at any time whooping, but vomiting after coughing. Fever developed and nourishment could only with great difficulty be induced to be taken, as it provoked coughing and vomiting. Cyanosis was noticeable, but face instead of being puffed seemed pinched. Blood examined, but was negative as to parasites, leucocytosis, etc.

Physical Examination.—Thorax emaciated. Respiratory movements not restricted, and synchronous. Number of respirations increased. Moist rales were distributed through both lungs; there was blowing respiratory sounds. Suspecting tuberculosis some of the vomitus was centrifugated and smears made from same. Tubercle bacilli were found. The mother, though thin, did not give evidences of having tuberculosis. The father, though stout, and active, and lacking in subjective symptoms, was found to have tuberculosis of both lungs. His sputum contained tubercle bacilli.

This is a case of tuberculosis which, in absence of laboratory findings, could easily have been mistaken for bronchopneumonia, secondary to whooping-cough.

Adenoids, when provoking coughing, may give rise to paroxysms exactly like those of whooping-cough, with the exception, of course, that there is no whoop. So far as my personal observation goes I have experienced greater difficulty in excluding adenoids than any other condition. The parents are kept in doubt for a week or longer, and finally sends for the physician, who most likely will prescribe some simple cough remedy, but after a night or so the parents report back that there is no improvement, but that the child coughs at nearly every breath. The diagnosis may be revised and different treatment instituted, but the condition continues unimproved. The knowing physician will now make an examination of the pharyngeal vault and his pains will likely be rewarded by finding abundant adenoids. I do not intend to convey the idea that all cases of adenoids give rise to symptoms resembling those of whooping-cough, but that *some* cases undoubtedly do.

Prophylaxis. Early diagnosis and isolation stands for prophylaxis in whooping-cough. It is probable that the disease is contagious throughout its entire course, but the preponderance of testimony is in favor of its being most contagious during the catarrhal stage, and least contagious during the stage of decline. This would seem to be supported by the finding of the specific organism, in unmixed culture, only during the catarrhal stage.

Whooping-cough occasions greater contrariety of opinion among sanitarians than almost any other disease. This is due to the variable length of time of the different stages, also to lack of unanimity of opinion as relates to its contagiousness.

It is obvious that in large cities where the disease is endemic to quarantine a patient for two weeks after cessation of all symptoms, and to likewise quarantine all children in same building for a like period of time, would wellnigh annihilate class system, if it did not interrupt school entirely. Whooping-cough, although one of the most contagious of diseases, is probably never conveyed to others by a second party—direct exposure seems neccessary. Why then exclude from school those who produce satisfactory evidence of past infection? For kindergartens the quarantine should be absoulte, and all children with coughs be sent home until the nature of same is determined.

Home management of whooping-cough is attended with much difficulty, as a majority of the cases never come to professional notice. These children are frequently allowed to run at large, and to freely mingle with even young infants who are so unfortunate as to be led that way. This is the fountain-head of all epidemics and cause of increased death rate of infants, and children of tender age.

After the spasmodic stage of whooping-cough children might be allowed the privilege of the sidewalk or park, provided they are accompanied with some person competent to keep the unprotected away. I have seen it suggested that some suitable placard, or uniform be placed on the child. The public should be taught that to young infants and to weaklings, whooping-cough carries with it a greater death rate than smallpox, scarlet fever, or diphtheria, and that by permitting their children with the disease to mingle with the unprotected, they are almost certainly causing, directly or indirectly, deaths in some families. The parents will argue that their child needs the fresh air and that it is entitled to it for its own recovery; that it is the duty of others that are well to keep away, etc. To properly adjust that matter it is only necessary to remind the parent that the air on their premises is as pure as that on the sidewalk. Should there be no yard to the house, the child should be dressed as for out-doors and set near an open window until the spasmodic stage is over, after which time it may be allowed the privilege of sidewalk and park, with above mentioned precautions.

Pathology.—Inasmuch as most of the authorities agree that whooping-cough is without post-mortem changes characteristic of the disease, it will serve our purpose to consider the part played by the vagus alone. Not being able to find anything in print on the subject I offer the following theory: The vagus, because of its peculiar distribution and complex reflex power, may possibly, at the beginning of the spasmodic stage, attain a degree of *super-sensitiveness, by the selective action of the toxins of the specific organism* that may need only to be "touched off," as it were, through the influence of some *peripheral* stimulation, such as local irritation induced by formation of mucus about the epiglottis, or by foreign substances coming in contact with the sensory nerve terminals supplying mucus membranes of fauces, etc. The "touch off" may be caused in same way through reflexes having their origin in nerve terminals supplying the nose, viscera, and integument, indeed, impressions received by the psychocortical apparatus may act as an exciting cause, as is so frequently the case when paroxysms are induced by excitement, fear, etc.

Treatment.—Whooping-cough is a self limited disease. However, thus far etiologic treatment is not specific, even the numberless drugs that have been exploited against the disease constitutes the best evidence we have against the specificity of any one of them—the proprietaries to the contrary notwithstanding.

In a general way the treatment for this disease has for its object to sustain strength and nutrition; to mitigate number and severity of paroxysms and to anticipate complications. Strength and nutrition is best conserved by strict adherence to hygienic and dietetic principles. Ventilation without drafts is secured alone by personal instruction and supervision, inasmuch as the first thing the mother or nurse does is to place the crib close against a wall, and as if that does not afford sufficient protection against drafts, they seek to find some close corner. To do this is to defeat the very object sought, as a wall, especially a corner, collects drafts which are deflected downward on the child. If the question of gaining more sleep for the patient, as well as for the rest of the family, is a desideratum, then it would be well to place the crib well away from any wall, and surround it with a sheet, left open at the top. This not only keeps off drafts, but may be improvised into a tent, merely by covering top, and drawing sheet apart at side when inhalations are employed.

As a rule children, not too delicate or hindered by some complication, do better in the open air, it conduces to greater resistance, and adds to its general improvement. Should there be tenable reasons for keeping the patient indoors, then the "two room" method should be adopted—being far more satisfactory than a close, over-heated house.

Vomiting is frequently an early and persistent symptom. It may prove so constant as to seriously interfere with nutrition and admits of no dietetic tinkering—*stultitia plerumque exitiio est.* Food should be given as soon after paroxysms of coughing as possible, and in concentrated form for rapid passage, otherwise it will be ejected with each emesis. For infants not breast fed and for young children nutrition may be maintained by selecting from the following diet list, viz: Milk, modified milk, some of the proprietary milk foods, broths thickened with flour, rice or barley, soups such as split pea, potato, vegetable, oyster (or its substitute made by toasting thin slices of stale bread which are then thinly spread with butter, over which is poured hot milk. Season with salt, pepper and a few drops of Worcestershire sauce. This is very palatable and acceptable to most children). Eggs in almost any form. Gruels of corn meal, wheat or oat meal. Grape nuts, Taorena and Zwieback. Stale bread, over which is poured sweet milk and sweetened with a little sugar is relished by most children and frequently will constitute the chief diet. Fruits are allowable; they may be eaten raw, cooked or made into souffle. The above list may seem unnecessarily particularized, and of unruly length, but it is well to always have in mind a varied diet list as we are so frequently called upon at any hour of the day or night by parents who want to know "what else baby can have," as it is tired of "so-and-so" or "it won't take anything offered it." When you inquire as to what has been offered it, you little wonder at its fortunate refusal.

Protracted vomiting causes qualitative and quantitative changes in gastric juices, which frequently require correction by some suitable substitute before digestion and absorption can take place; even then the demand for nourishment may become so urgent as to require the *prima via* to be supplied at both ends.

The list of drugs that has been employed in the treatment of whooping-cough is too long to be even enumerated; therefore, only quinine, belladonna and antipyrine shall be considered, inasmuch, as they enjoy much vogue and seem to be the only ones of unanimous endorsement. Local measures should be employed early and continued throughout the course of the disease. They may be used as gargles, sprays, inhalations, applications, insufflation and even by innunctions, or "Roach's Embrocation" would never have resulted as a spurious conception of pharmaceutical empirism, and commercial avarice.

Quinine, because of its anti-zymotic and antiseptic properties, as well as its power to lessen reflex action, is regarded by some authorities as the best single drug for the treatment for this disease. Forchheimer, Ortner, Zahorsky and Greatzer accord quinine their unqualified preference. Their observations would seem to but confirm the findings of Binz who, more than any one else, determined in this drug a dependable chemical limitant of the causative organism. To be of any service whatever quinine must be given in large doses. Should constitutional disturbances necessitate the withdrawal of the drug, arictochin (diquinine-carbonic-acid ester, 96 per cent. alkaloidal quinine) should be tried, as quinism is not easily induced.

Those who might be unnecessarily consertive in the amount of quinine given in this disease might be interested in the following case:

Patient.—Infant, white, female, age ten months.

History.—Three months previously infant was ill with malarial fever, but made good recovery under quinine treatment. It was now being treated for another attack. One afternoon being summoned in haste I found it just recovering from a convulsion. The superfaces were cold, blue and clammy. Temperature 104°, but declined to 102° and remained there about for several hours. Believing the convulsion to be due to malarial fever I gave a hypodermic of two and one-half grains of quinine hydrochloride and urea, which, in turn, was followed by two grains of euquine, given in condensed milk every two or three hours. It was now ascertained that an infant of one of the domestics living on the place was quite ill, but the nature of the trouble was not suspected as it died in convulsions. Other children on the premises developed whooping-cough, and it was now recalled that the infant before the fatal convulsion had had paroxysms of coughing. Every precaution was taken to prevent the disease being conveyed to my patient, but in spite of isolation paroxysmal coughing announced a simultaneous infection of malarial fever and whooping-cough.

In this case more satisfactorily than in any other did I have an opportunity of noting the good effect quinine had on paroxysms of coughing.

Belladonna has its place in whooping-cough therapy because of its sedative action on the vagus, and theoretically counteracting undue stimulation of the nerve caused by toxins of the specific organism; also because of its depressing effect upon the sensory nerves

Jacobi is an ardent supporter of the claims made for belladonna, and writes, "Of all the almost countless medicines advised against whooping-cough I prize belladonna most highly. For an infant from six to eight months old he gives one-sixth grain of the root or alcoholic extract, t.i.d. For child three or four years old he gives one-half grain, t.i.d.

To give the drug to any good advantage it must be pushed to its full physiologic effect, or as Jacobi puts it, until there is a flushed condition of the face and, as it were, feverish appearance following each dose. It is needless to state that these symptoms in the infant are distressing to the patient and does not inspire confidence in the parents, especially as the coughing fits are not materially influenced. For the past few years I have never used the drug, and must confess that it has not been missed, in view of other drugs unaccompanied by such distressing constitutional symptoms.

Antipyrine being a local anesthetic, an analgesic, and an antagonizer of excitability of the motor centers, has a strong theoretic claim for first thought in whooping-cough therapy. Callie states that it is the only drug that has given him any results whatever. Stevens says that it is his most reliable remedy. Chapin gives it a prominent place, while Kerley has worked out in a very systematic and scientific way the influence antipyrine has upon the paroxysmal stage of whooping-cough. He used belladonna in sixty test institutional cases, without influencing a single case in the slightest degree. Antipyrine was also used in sixty institutional cases and gave better results than any single drug. The drug may be combined with codeine or bromides to suit individual cases.

In reviewing the action of quinine, belladonna and antipyrine, it is plain from conclusions reached by leading authorities that thus far we have no single drug that seems to be entirely satisfactory, but that the choice of any one of them would appear to be more a personal equation with the therapeutist than to any distinctive effect the drug might have upon the disease. If it were possible to reduce to a mathematical quantity the weight of testimony in favor of any one of them *caeteris paribus*, antipyrine would probably be the drug deserving of first thought in the treatment of a majority of the cases of whooping-cough.

No matter what one's success has been in the treatment of whooping-cough, nearly every practitioner recalls cases where one drug after another failed to influence the disease in the slightest, and the parents' importunities to give the child rest seems to add not a single virtue to "dopes" used, as the disease stubbornly holds out against any array of medicines. These cases are usually those accompanied with hypertrophied tonsils, and abundant adenoids.

CASE OF PYELITIS: UNUSUAL DIFFICULTIES IN DIAGNOSIS.

BY

ARCHIBALD D. SMITH, M. D.

Brooklyn, N. Y.

M. S., female, aged 14 months, was first taken sick on October 4th, 1911.

Previous History.—As a baby she was breast fed for three weeks, and as a result of artificial feeding which did not agree with her at the age of two months she weighed 6 pounds 14 ounces. With proper feeding her gain had been fairly steady during the rest of the first year, though one month before this illness she was still under weight, 20 pounds 15 ounces. Aside from a slight tendency to eczema she had never had any illness.

Present Illness.—She had been in good health up to Cctober 4th, 1911, when the mother said she seemed apathetic, refused her food, and seemed to have a high fever, as the skin was very hot.

Physical examination including ears and throat was negative, except for the flushed appearance, and a spot of diminished respiration, and slight dulness in the upper posterior part of the left lung. No rales. Temperature 105°, pulse 160, Respiration 32.

On the third day of the illness although the temperature came down to 102.6° the pulse was still 160 and the respirations had gone up to 56. The signs in the left lung had cleared up and been replaced by signs in the right lung of exactly similar character. The heart showed a slight systolic murmur at the apex. The spleen was felt at the free border of the ribs for the first time. The urine examination was negative for pus, the diazo reaction was negative also. The blood examination showed a negative Widal reaction, and was negative for malaria. The examinations in detail follow:

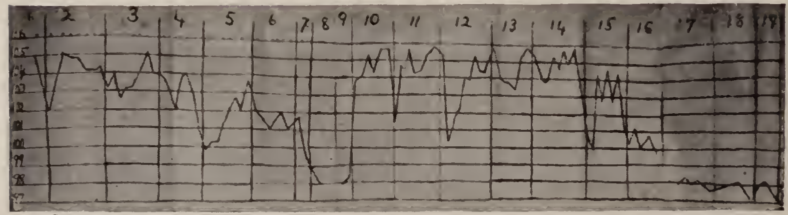
Urine Examination.

	3rd day	10th day	13th day	17th day	23rd day
Specific Gravity		1012		1014	1012
Reaction	Acid	Acid	Acid	Acid	Acid
Transparency	Sli. opaq.	Sli. cloud	Cloudy	Cloudy	Sli. cloud
Color	Lt. lemon	Lt. lemon	Straw	Lt. lemon	
Uric Acid		Diminished		Diminished	
Chlorides		Normal		Normal	
Phosphates		Diminished		Diminished	
Albumen	Trace	Trace	Trace	Trace	Trace
Sugar	None	None	None	None	None
		Microscopical			
Casts	None	None	None	None	None
Pus	None	None	Considerable	Much	Moderate
Epithelial Cells	Spindle Squamous	None	Many small round, few squamous	Small rd. and spindle	
Diazo Reaction	Negative	Negative	Negative		

Blood Examination.

	3rd day	10th day	13th day
Leucocytes			18,000
Malaria	Negative	Negative	Negative
Widal	Negative	Negative	Negative
Polymorphonuclear	73		75
Lymphocytes	27		25

By referring to the temperature chart you will see that the temperature came down irregularly to the eigth day, and then it did not rise above normal either on that day or the ninth day. The temperature for the seventh, eighth and ninth day was taken every four hours, but as it did not show any variation it has been abbreviated in the chart.



On the tenth day the temperature suddenly rose again with no more definite physical signs than we had before, the diminished respiration and dulness being again present in the right lung posteriorly, but lower down than previously. Spleen was still palpable to free border of ribs. The urine examination was again negative except for a trace of albumen. The blood examination was negative for the Widal reaction, and the examination for malaria was negative.

By referring to the temperature chart you will see that the temperature reached a high point on the eleventh, twelfth and thirteenth day.

On the thirteenth day, as very little progress had been made in the diagnosis, the baby was seen in consultation by Dr. L. C. Ager, whose helpful counsel I wish to acknowledge, as well as that of Dr. F. A. Hulst, who made the blood and urine examinations on this day.

The appearance of pus in the urine, with a heavy sediment, for the first time, on the thirteenth day, settled the diagnosis, and made it clear a case of pyelitis was in hand.

By referring to the temperature chart again, you will see that the temperature came down to normal on the seventeenth day of the illness, and did not again rise above normal.

In considering the differential diagnosis, up to the thirteenth day we might have been dealing with an influenza, a malaria, or a typhoid fever. During the first few days it seemed most probable that we had a typhoid. Then malaria was ruled out by the therapeutic test, and finally it seemed as though we were dealing with an influenza. The appearance of pus in the urine with the other findings settled the diagnosis as pyelitis.

As for treatment urotropin gr. 1 q 2 h. was begun on suspicion on the twelfth day, before the diagnosis was settled. On the fifth day after beginning urotropin the temperature did not rise above normal. Such a prompt response to treatment has been the exception rather than the rule in the cases of pyelitis which it has been my privilege to observe.

In conclusion I would say that I regret the omission of a blood culture, and a culture from the urine, but under the circumstances it was impossible to obtain either.

159 Herkimer Street.

ACUTE NEPHRITIS IN CHILDREN.

BY

H. M. McCLANAHAN, A.M., M.D.
Omaha, Neb.

This paper is based upon the clinical study of fifteen cases of acute nephritis in children that I have had under my care and treatment during the last three years. In addition to these I have seen a number of cases in consultation with other physicians, and it is my conviction that nephritis is more frequent both in infancy and childhood than would be inferred from the study of the text-books. During the last few years I have made hundreds of routine examinations of the urine in children and have occasionally been enabled in this way to detect the presence of a nephritis that might otherwise have escaped notice. It is not uncommon to find a trace of albumen in the urine without any general symptoms. This is not only true in children suffering with some acute infection, but it also occurs in children apparently well. This subject has recently been very exhaustively studied by Hamill whose article appeared in the February number of the *American Journal of Diseases of Children.*

I shall not attempt to discuss the pathology of nephritis but will limit my remarks to the etiology and treatment, briefly noting the symptoms as they relate to the treatment.

Nephritis occurs as a complication or sequella of a number of acute diseases. In my series of fifteen cases, four followed scarlet fever, three followed an acute attack of tonsillitis, four occurred as a complication of la grippe, one as a complication of entero-colitis, and in three other cases I was not able to learn from the history of any preceding acute disease.

Two of these cases came to my office because of dropsy, and the third case I was called to see because of a peculiar shortness of breath that gave the mother worry. In each case I inquired very minutely for any evidence of a preceding mild attack of scarlet fever.

I think the importance of nephritis as a complication of tonsillitis should be more generally recognized. I have seen three cases in consultation, with a clear history of preceding tonsillitis.

Doctor J. L. Morse has recently emphasized the importance of this disease as an exciting cause. The important lesson is that nephritis may occur in the course of any acute disease of childhood. We have all been taught to anticipate this in scarlet fever; should we not also be on our guard in other acute infections? It is probably true that in all infections, toxins are eliminated through the kidneys, often causing irritation or congestion of these organs, but not disturbing their function sufficiently to produce symptoms. There is no sharp line of demarkation between these cases where we find a trace of albumen and those that lead to a true nephritis.

It is probable that in cases where the kidney is irritated as the result of a general infection, a very trivial cause may be sufficient to induce an acute nephritis, where the tendency already exists. Hence in a child suffering from some acute infection, chilling of the body by going out of doors too soon, or improper diet, or imperfect elimination from the bowels, or too active exercise by increasing the blood pressure, may induce an acute attack.

Still, of London, in his work on the common diseases of children, reports as follows of the causes of nephritis: Of one hundred cases under his personal observation, twenty-two per cent. followed scarlet fever, the others occurred as a result of grip, diphtheria, varicella, pneumonia, typhoid fever and summer diarrhea. He reports that a number occurred without assignable cause, but these cases usually develop in the winter and spring, and he believes that changes in the peripheral circulation, bear some relation to nephritis.

It is my custom to consider the symptoms under four general heads: First, the urinary findings; second, the evidence of dropsy; third, the condition of the nervous system; fourth, the condition of the blood and heart. I feel that having these conditions in mind aids the treatment and puts the physician more carefully on guard for danger signals. As to the urinary findings, albumen is always present, but this is not so important as the microscopical examination. In all my cases, casts of various kinds have been found. In all the cases following grippe, blood has been found in the urine. The extent of dropsy does not in my experience bear any direct relation to the severity of the case although in all cases dropsy was a symptom. I think it is important to be on our guard for effusions within the pleural and pericardial sacks. In one case I was satisfied that there was an increased amount of cerebro-spinal fluid and I did a lumbar puncture with apparent benefit. In all cases we should carefully watch the nervous system. The nervous symptoms vary greatly in different cases and I find that fine muscular twitchings generally precede more severe convulsive symptoms.

Secondary anemia was present in all my cases. In six of them an examination of the blood was made. This always revealed a simple secondary anemia. But greatly more important is the condition of the heart. The possibility of an acute dilatation should be constantly kept in mind. One of the fatal cases was directly due to this cause. The first symptom to attract attention of the parent in three of the cases was scantiness of urine. Complete suppression of the urine is exceedingly rare, and sudden increase in the quantity of urine should not deceive the physician as it may only indicate an increased blood pressure with practically no excretion. In one of my cases there was a sudden increase with a specific gravity of only 1002 and in this case general convulsions occurred within the next twenty-four hours.

Treatment.—It has always seemed to me that the principles of treatment are made more clear when we realize that because of the inflammation of the kidneys they are largely incapable of performing their functions and that as far as possible they should be given physiological rest.

There are to my mind, four cardinal points in the treatment: First, keep the child in bed and warmly clad. This point should be made very clear to the mother or nurse. As it is not possible to keep the child constantly covered, the safer plan is to have all its clothing so made that it can not expose any part of its body when the coverings are thrown off. The air of the room should be warm but not stale. I make it a rule in the home to use two rooms for the patient. While one is not occupied it can be thoroughly ventilated and warmed. In this way we are assured of a proper temperature and fresh air. It is important to instruct the mother to guard against the child getting out of bed and running about the room.

Secondly, prompt and thorough elimination from the skin and bowels, comprises the most important part of the treatment. At the same time refraining from the use of remedies that increase blood pressure, we give as far as possible rest to the impaired kidneys. The bowels should be evacuated from two to four times each twenty-four hours. Rochelle salts in water to which lemon juice has been added, is a palatable and efficient remedy. Calomel in broken doses should be given at the beginning and may often, with benefit, be repeated in a few days. In two of the cases the child could not retain any remedy by the stomach and it was necessary to use enemas. In both cases I had good results from the use of Epsom salts with glycerine and water. In the use of this combination, I think it is important to introduce the enema under low pressure and to encourage the child to retain it as long as possible. To induce free perspiration I think the hot blanket pack is the most practical method in the home. Dry, hot air is valuable but more difficult to apply, and also has the objection of danger from fire.

The bed is prepared as follows: The blanket is placed over the sheet, and over this a rubber blanket. The patient is then wrapped in a blanket wrung out of hot water, being covered from the neck to the foot and placed upon the rubber sheet, the rubber sheet is then wrapped entirely over the blanket. This prevents the dissipation of heat. Over this is placed a warm, dry blanket. The patient is to be carefully watched while in the pack. Usually after a few moments the child will quiet down and cease to resist. We can best study the effect of the pack by noticing the perspiration on the face. It is usually best to let the child have sips of cold water while in the pack. In the severest case that I had, a little boy five years of age, who had uremic convulsions, the treatment was continued for two hours daily. On two occasions he remained four hours in the pack.

When taken from the pack the rubber sheet can be removed and the child placed in the warm blanket and well covered. Often free perspiration will continue after the child is removed from the pack.

While in the dry blanket, I like to have the child rubbed thoroughly with equal parts of alcohol and hot water. Extreme vigilance to prevent the patient's body from becoming chilled, following the pack, is always important.

Where there was great general anasarca, this treatment was repeated twice a day. In cases where the tissues are loaded with fluid, very little liquid should be given the patient. To satisfy the sense of thirst, I permit the child to take pieces of cracked ice in the mouth. This is also valuable where there is nausea. As a rule it is well to keep a balance between the amount of fluid ingested, and the quantity of urine excreted, also, where there is nausea, warm saline enemas are valuable. Each case, however, must be a law in itself, as to the quantity of liquid ingested. The hot packs should be continued until the quantity of urine is twenty ounces a day, with a specific gravity of not less than 1015. I have found this an excellent arbitrary rule. Except to meet complications and to regulate the bowels, drugs are not indicated during the acute stage.

Third, diet: During the acute stage, the more nearly the patient can be kept on a milk diet, the better the result. This can usually be done by modifying the milk in various ways. One of my patients that utterly refused sweet milk enjoyed the modified lactone milk. Another one that refused milk was easily induced to take a malt cereal gruel, to which ten per cent. of cream was added. In addition to some form of milk diet, I like to give the fruit juices, including grape juice, sweet cider, pine apple juice, and the juice from canned berries. It has seemed to me that these tend to prevent putrefactive changes in the intestinal canal. In two cases that refused milk in any form, I resorted to malted gruels and animal broths. As the case improves, constant care in the diet should be enjoined. However, as there is a secondary anemia in all these cases, the physician should not err in restricting a nitrogenous diet too long. Here beef juice, with thick soups made from peas or beans, also well cooked cereals, are indicated.

Fourth, the treatment of complications: The nervous system should be carefully studied from day to day. Headache and muscular twitchings are valuable danger signals. In my experience they usually precede uremic convulsions. Convulsions occurred in two of my series of cases, and both of these cases ultimately recovered. The most important remedy to relieve this symptom is morphine given hypodermically. The argument that this drug checks the secretions, does not warrant the position of waiting for a child to die when by the use of this drug the physician can quiet the convulsions and induce sleep. At the same time hot packs or salines can be given.

The condition of the circulatory system should be constantly watched. Acute dilatation of the heart as indicated by an increased area of dulness and the character of the pulse, demands prompt attention. I believe that in a child lying quietly with a pulse, rapid in proportion to the temperature and respiration, there is an indication for treatment and in this condition I do not hesitate to use digitalis. The ice bag applied over the heart for a few hours at a time is also an excellent remedy, and well borne. In this condition where there is also restlessness, morphine is indicated. It quiets the nervous system and probably for this reason slows the pulse. In recommending this remedy, I want it distinctly understood that it is to be used only under the restricted conditions mentioned. A practical question in cases that recover is, how long a time must elapse before the kidney is fully restored?

In six of my cases I have had the opportunity of watching them for a year or more and have found that while the albumen had disappeared within from six to ten weeks, granular and hyaline casts persisted for months. I think parents should be told of the importance of having the urine examined occasionally for two or three years after the acute attack. I have now had one case under observation for three years. While the child is in splendid health, the urine still shows the presence of casts at intervals. As to prognosis, no definite rule can be given. It is true that any case may become dangerous. The quantity and character of urine and the condition of the circulatory system are the two most important elements in the prognosis.

In conclusion, nephritis in children may complicate any of the acute infectious diseases, or it may develop in a child without a history of any infection. After apparent recovery the case should remain under the observation of the physician for two years or longer.

468 Brandish Building.

SOCIETY TRANSACTIONS

NEW ENGLAND PEDIATRIC SOCIETY.

The seventeenth meeting of the New England Pediatric Society was held October 21, 1911, in the Boston Medical Library. The following papers were read:

(1) Two Cases of Congenital Hypertrophic Stenosis of the Pylorus. C. A. Porter, M. D., Boston.

(2) Amaurotic Family Idiocy. Richard M. Smith, M. D., Boston.

(3) A Card for the Rapid Calculation of Milk Formulae. J. Herbert Young, M. D., Brookline.

(4) Methods of Favoring Proteid Digestion. Robert B. Hunt, M. D., Boston.

Congenital Hypertrophic Stenosis of the Pylorus.—Dr. Porter reported two cases of congenital stenosis of the pylorus with operation. One baby died after operation from an acute infection of the digestive canal. The autopsy report showed a tumor of the pylorus with a greatly reduced lumen. The second baby was operated at ten weeks and had an uneventful recovery.

Dr. Talbot: Dr. Porter's paper.

The case of the second child brings out one or two important points. After the operation, the surgeons elevated the child's feet because it was in very poor condition and just as soon as it recovered from the shock of the operation it was put in a semi-sitting position. The reason for that was that the anatomical position of the anastamosis between the stomach and small intestine was low down and the position favored the passage of milk out of the stomach. As these children are very much emaciated, it is very important that food should be given to them as quickly as possible, and in the best form possible.

One important thing from the point of view of the after treatment was that the mother of this child had had two or three weeks of worry about the baby because of its emaciation and, as a result, her milk had practically given out. When I first saw her in the ward, which was one or two days after operation, she said she had no milk. We talked to her at length and persuaded her to use the breast pump every three hours at home and come in and have one of the normal babies nurse her.

The last day the baby was in the hospital, the tenth day after operation, it got four nursings from its mother. The rest of the feedings was modified milk. The baby was put in a premature bed, kept warm with hot water bottles, and had the constant attention of a special nurse. The first three or four days it was fed by a dropper and then after a time with a Breck feeder. On the fifth day, it was eating ravenously. I talked with the father three days ago and he said since leaving the hospital the baby, who is now eight months old, has not had a sick day and weighs 21 pounds.

I think that the after treatment belongs to those especially trained in the care of babies, and is almost as important as the care in keeping the baby warm during operation.

Dr. Scudder: Dr. Porter's paper.

I have had one case die after operation, and have a beautiful specimen of a tumor similar to the one that Dr. Porter has shown. I think we ought to keep in mind the fact that there are cases that the pediatrists see that are not due to a definite and organic obstruction of the pylorus but due to spasm. I think that up to within a few years, spasm of the pylorus has been a hypothesis that has been advanced by enthusiastic pediatricians to explain the symptoms of difficult feeding in a certain group of cases. I think that from the evidence at hand now we may feel that there is a definite group of cases where spasm exists independently of the obstruction. On the other hand, I think that we must keep in mind the fact that these little babies do recover after operation and just as soon as the general practitioner interested in these cases realizes the fact that he must place the babies in the hands of the surgeon with a margin strength, these cases will recover more frequently than in the past. A few years ago the operative mortality in the first series of cases was about 50 per cent. but the mortality today is nothing like that. There have just been reported by a man in Chicago, I think, eleven cases with one death. Stillman on the Pacific coast has just reported ten cases operated upon with only three deaths, some of them desperate cases. There is another series of my own of fourteen cases with one death. The general practitioner should more often resort to operative procedure without waiting to see what he can do with feeding, and in this way more cases will be operated upon and more often saved. There is a very good article in the last *Journal of Children's Diseases* by two men out West who have corroborated the findings of Pavlov and Cannon with regard to the acid control of the pylorus in children. They worked upon animals. These men have done some work in human beings and found that there is the same control in little babies, in other words, the human baby experimentation corroborates that which was found to be true in the animal. The reason why this experiment was undertaken in this western hospital was, one of the writers states, to determine if possible whether there might not be some method of treating the class of cases in which there is spasm and not a tumor of the pylorus. I mention these experiments in order to accentuate the fact that spasm cases exist and already measures are being devised to meet these cases on physiologic lines of treatment.

Dr. Jordan: Dr. Porter's paper.

I would like to report a case that happened in Providence within the last three weeks. This boy was born September 2nd, seven weeks ago today. Labor normal no instruments or anaesthetic used, weight, 8 pounds 6 ounces. Was said to be a good strong, healthy baby at birth. Mother and father both well. The father said that he had a brother younger than he who died when he was eleven weeks old from symptoms similar to those which this child had at this time. Delivery was by Dr. Fuller of Pawtucket and after the baby was two weeks old, Dr. Wilson the family physician took charge. When the baby was two weeks and four days old it started to vomit and it continued vomiting. At first the mother did not think that the whole of the feeding came up, but after a day it looked as if all the baby took would come up. After the first day the vomiting was explosive in character. The baby was breast fed. I saw this case the 28th of September, with Dr. Wilson. At this time the baby was vomiting everything, the history was that the baby started to vomit when it was two weeks and four days old and had continued up to that time.

On physical examination the child was poorly nourished and developed, had lost considerable weight since birth. Was very much emaciated, skin rather loose on the legs and arms, and he was also jaundiced. The head was about normal size, good shape. The eyes were sunken. Mouth: tongue clean, moist, negative. Chest: heart and lungs were negative, the abdomen above the umbilicus was level with the chest and rather hard; below the umbilicus was somewhat flat and not so tense. The liver could not be felt. The stomach was empty when I examined him, as he had just vomited. After making the examination I had the boy fed, and before the examination could be made with the child's stomach full, he vomited, the vomitus going about one foot above his head. That feeding had been of egg albumen diluted with water. I made a diagnosis at that time of incomplete hypertrophic pyloric stenosis. There were several stools in those days but they were very dark green and one that I saw seemed to have a little fecal matter mixed with it. I advised at that time that the child's condition did not warrant operation, so a trained nurse was advised, stomach washing and feeding with diluted breast milk. That was on Thursday. I did not see any more of the child until Monday morning. He did not stop vomiting until the following Monday, when I saw it, and at that time Dr. Wilson was going away and asked me to take charge of the case for him. I had the stomach washed out before each feeding with saline, and then introduced four drachms of one per cent.

soda bicarbonate solution and before the tube was removed I had put in an ounce of breast milk. The vomiting stopped, the bowels were about the same, would not move unless an enema was given, a very dark movement being the result. Three weeks ago today the nurse put in two ounces of food by tube at 3:00 o'clock. At 5:00 o'clock when she passed the tube she recovered the full two ounces; she put in two more ounces at 7:00 o'clock and recovered the two ounces at 9:00 o'clock. She called me up and asked what to do. I told her to wait three hours and do the same thing, then I told her to wait four hours and she still recovered the same amount. When I saw the baby Sunday, two weeks ago tomorrow there was visible peristalsis and a definite tumor could be felt. I advised at this time to have the child operated on and the child was brought into St. Joseph's Hospital in Providence and was operated on by Dr. Keefe, on October 8th. He made a median incision about the umbilicus, two inches long and had no trouble in locating the tumor. He did a Nichol's operation, that is, he cut through the anterior wall of the stomach and put in a probe to see if he could get through the pylorus; then he cut down, right through the tumor, but not through the mucous membranes, separated what looked like cartilage and then brought the incision together in just the opposite way. The child came out of the ether very well, and was given Murphy drip saline, one pint every four hours. At 8:00 o'clock the next morning the child was given two drachms of breast milk and two drachms of lime water. I should have said that he vomited twice during the night, and each time a mouthful of frothy mucus. He retained the breast milk every two hours he was given four drachms. The child went along very well and the food was gradually increased. He was taken home by the parents a week ago, October 15th. I saw him yesterday and he had gained just a pound since leaving the hospital.

Dr. Putnam: Dr. Porter's paper.

I remember another case which was operated on by Dr. Keefe in which a similar operation was done to that mentioned by the last speaker and it seems to me to offer a considerable advantage over the gastro-enterostomy which is a much longer operation and much more severe on the babies. It seems to me it is fair to suggest the idea that leaving the pylorus so that it is used afterwards may be of advantage to a certain degree. The symptoms were quite characteristic when I saw the child the first time, and it was quite clear to me that it was a case of pyloric stenosis, but the visiting physician did not seem quite satisfied and wished to wait a little longer. The symptoms were so well marked that there seemed to be no doubt about the diagnosis. The stenosis was practically complete, and there was no evidence to show that the food passed from the stomach. At any rate, the feces showed no sign of food. The child was then very sick, and became sicker, and then they decided to do the operation, and what they did was to cut into the stomach and then the pylorus was stretched and not cut, and the point which I wish to mention is that if this child had gone through a more severe operation it could not possibly have stood it. I did not see the operation. An incision was further back in the stomach and an instrument put in, which was very small and found its way through the pylorus with difficulty and then the pressure was increased until the pylorus was torn apart and then they sewed the ends together in the opposite direction. At first there was some little difficulty in getting the child to retain food, there was some vomiting, but in a few days the condition improved, and now the child is well and strong and the food is going through the pylorus. I have not looked up the cases to see how many operations of this sort has been done, but it seems to me a very important thing to consider—whether it is of great advantage to have the pylorus so arranged that it can be used in after life, so that the child will not depend upon a gastro-enterostomy. The child is now a perfectly healthy, large boy, and yet it was extremely ill when it was operated upon.

Dr. Scudder: Dr. Porter's paper.

I believe personally that other things being equal the operator finds that he can do quicker work by using that procedure with which he has familiarized himself, provided it has been used sufficiently long to establish it as a safe operation. I think a gastro-enterostomy is the best operation for these cases. Dr. Talbot has established without question the fact, by metabolism experiment following gastro-enterostomy that there is no material change in digestion following gastro-enterostomy and that has been also demonstrated in adults. Posterior gastro-enterostomy does not make any difference in the physiological behavior of the stomach and intestine. If this is true we are justified in doing a gastro-enterostomy. Moreover, the subsequent course of these cases proves that gastro-enterostomy does not give us well, strong children subsequently. The operation that Dr. Nicholl does certainly has in serious cases resulted well, and if it can be done as quickly, and in other cases as accurately, it would be a good operation to use, but I think that the gastro-enterostomy has nothing against it, and very much in its favor. There are dangers in the Nicholl operation and there are unsatisfactory results attending its use.

Amaurotic Family Idiocy.—Dr. Smith gave a brief review of the literature of amaurotic family idiocy and reported two cases.

Dr. Swift: Dr. Smith's paper.

The speaker thought it would interest you to present a short epitome of the pathology. The pathological findings are typical and uniform. (a) in gross: The brain shows either no changes whatever in convolutions, fissures or weight, or may show atrophied convolutions, abnormal fissures and loss in weight. (b) moctoscopically: There is a peculiar degenerative process throughout the cells of the whole central nervous system, from the nuclear layer of the retina, through all the nerve cells of the brain and cord, even to the cells of the root ganglia, a process which is easily diagnostic of amaurotic family idiocy and consists of a swelling or inflation of the cells into baloon shaped forms, the settling of nucleus with nucleiolus to one side with their final disappearance, and a settling or clumping of nissl granules about the nucleus. The dendrites are often markedly swollen, but the axis cylinders are uninvolved. Finally the nerve fibres degenerate and the emptied space fills in with neurollia proliferation. So complete is this cell dissolution that one investigator reports that nowhere could he find a normal cell. The degeneration is a little different from other degenerations. The typical things are the balloon shaped swollen forms of the nerve cells, the dilated dendritic processes and the massing of nissl granules. The men here are Fay, Sachs, Spiller, Kingdon, Schaffer. Then Dr. Swift demonstrated under the microscope: (a) a normal nerve cell; (b) a nerve cell showing the usual atrophic degeneration as in anterior poliomyelitis and (c) cells with the balloon shaped degeneration as found in amaurotic family idiocy.

Dr. Fairbanks: Discussion of Dr. Smith's paper.

Dr. Swift has forestalled me on the pathology of this affection so that I will say nothing along that line lest it be a repetition of his remarks. There are, however, a number of clinical features of the disease of which I wish to speak. Of these, one, especially, is very generally misinterpreted, and the mistake is repeated in practically all of the text-books on neurology and Sachs also makes the error in his descriptions of the disease. This condition that is so universally misinterpreted is the muscular relaxation present in the earlier stages of the affection. Contrary to the statements generally made and stated by the reader tonight I wish to emphasize the fact that this flaccidity of the early period is not due to flaccid paralysis. It is only a muscular relaxation due to the degeneration in the frontal region of the brain. It is of mental origin and not due to lesions in the lower motor segment. The reflexes will be found unchanged, or indeed often increased in this apparently flaccid stage, no reaction of degeneration will be found in the muscles and no muscular atrophy of local character is present, only that due to the general emaciation. Finally, if one desires more proof that this early relaxation is not true flaccid paralysis, I need only call attention to the spasticity that develops in the later period of the disease. This could not occur if there existed previously a true flaccid paralysis. This later spasticity is simply secondary to the extension of the ganglionic cellular degeneration from the frontal lobes to the puramidal cells of the motor cortex. Hyperacuity to sound has been present at sometime in the course of the disease, in all of the cases that I have seen. Hyperausthesia to touch is occasionally present but is rare. If the fundus is examined very early in the course of the disease, the characteristic appearance of the macula may not be present but only a slight haziness seen. It may be said that the "cherry red" spot in the macula invariably seen in the well developed period, is really the only feature of the macula that is not rexally abnormal. Its color is due to the pigment of the retina and to the color of the vessels of the choroid showing through the centre of the macula which is practically devoid of cells. Immediately adjacent to this circular cell-poor central portion the cells of the macula lie in a layer eight to ten cells deep, diminishing in thickness as the circumference of the macular region is approached. It is, therefore, these layers of swollen and degenerated cells that give to the macular region its whitish gray appearance, and this is naturally much more intense immediately around the central red spot, because of the thickness of the cell layer there, thus throwing that area into sharp definition. The optic disc is clouded from optic atrophy, although this sometimes does not appear until the process is well advanced. The arteries of the retina are usually much smaller than normal. However characteristic the fundus may be I believe that it is practically always possible to make our diagnosis before the ophthalmoscopic examination is made. The invariable onset of muscular relaxation between the third and the fifth month in sharp contrast to the previous progressive development of muscle power, the slowly increasing apathy due to the progressive mental enfeeblement and the diminishing visual power, the sudden shrinking or contraction of all the muscles in response to sharp sounds, the gradual increase of the reflexes and onset of muscular rigidity all form a clinical picture that cannot be mistaken when once seen. Nevertheless, until we know more about the cause of the degenerative affections of early life, I believe we should not include in the classification of this disease, instances that do not at sometime show the appearance in the fundus just described. I do not think that the juvenile affection referred to and which commences after puberty is in anyway connected with the disease we have under discussion. As to the etiology of amaurotic family idiocy we are no nearer its solution than we were when Tay, thirty years ago, first described the ophthalmoscopic picture. We know that it is inherited, that it is a familial affection and that it occurs practically exclusively in the Hebrew race. I have on my records fifteen cases, and every one, without exception occurred in Russian Jews. But we do not know why. The case that Dr. Smith has just presented was for a time under my observation. The other one to which he refers I also saw and presented it before the Boston Society of Psychiatry and Neurology last spring. The majority of my cases have come under my observation in the last four years, a fact that I attribute to the increasing numbers of the Hebrew race in this part of the country.

Dr. Swift: Dr. Smith's paper.

I have a point of clinical interest not yet mentioned by any of the gentlemen and it is that Higier reports in a single family two children with family optic atrophy, two children with cerebella ataxia, one child with typical amaurotic family idiocy.

Dr. Morse: Dr. Smith's paper.

I want to say a word or two about this class of cases. The number that I have seen now runs into two figures and they have all been in Hebrews. I thought at one time that I had found one which did not have Hebrew blood in it, but I found out from the neighbors afterwards that it did and that the parents were ashamed of it. I agree with Dr. Fairbanks that we ought to be able to make a diagnosis in every case without an examination of the fundi. I take exception a little to the cherry red spots which are said to be characteristic; most of the spots which I have seen have been a sort of rusty brown. This baby has the cherry red spot, but more often you will find it to be rusty brown. Most of the cases that I have seen have had this acuteness of hearing; most of them, though, have not been restless. If they were left alone and were not asleep they were perfectly stupid; then if anything stirred them up, or if anyone interfered with them, they would be restless temporarily, but most of the time they were perfectly stupid.

Methods of Favoring Proteid Digestion.—Dr. Hunt's subject was taken up under the following headings: mechanical, chemical and predigestion. He also showed various samples of milk and how the curd was affected.

Dr. Rotch: Dr. Hunt's paper.

I also think that in certain cases it is a good plan to add a small amount of alkali, a moderate alkalinity of the milk being for the purpose of increasing the normal acidity in the stomach. There are certain cases of difficult digestion in infants where we need more acid. In that case we simply make the mixture mildly alkaline, distinguishing from the stronger alkaline solutions which lessen the coagulation. Therefore in the first instance you would simply make a slightly alkaline solution of the whole mixture. Where on the other hand you wish to lessen or prevent the coagulation you give a greater percentage of alkaline according to the amount of milk and cream which you are using in the mixture.

Dr. Morse: Dr. Hunt's paper.

There is, of course, no question that casein curds are sometimes present in the stools when babies are taking mixtures prepared with cereal diluents. This does not prove, however, that cereal diluents do not, as a rule, favor the digestion of casein; it merely shows that they do not act satisfactorily in that individual baby. Whey has an additional advantage in that it also acts as a protective colloid. The point which always comes to my mind, and which is always brought up by students, when the question of addition of alkalies to prevent the coagulation of casein and to relieve the work of the stomach is brought up, is how about the acid control of the pylorus? How can we reconcile the facts regarding the acid control of the pylorus and the relief of stomach digestion by the addition of the alkali? The explanation is, as I understand it, that when the contents of the stomach are entirely liquid another element comes in which results in relaxation of the pylorus.

ST. LOUIS PEDIATRIC SOCIETY.

Stated meeting, October 13th, 1911.

Dr. Julius M. Brady read the paper of the evening, entitled, Dietetics of Infancy:—

My first results with Fiweissmilch were very poor; this was a year ago and followed the first publication of Finkelstein on the use of this milk. As the result of a paper by Welde in the *Therapeutsche Monatshefte*, the early part of this year I again resumed its use. This writer was able to report on 60 cases, and his results corroborate the good results of the Finkelstein clinic. In the first article from this clinic great stress was laid on the necessity of being very careful with the addition of the carbohydrates. In a later article in the *Munchener Med. Wochenschrift*, Finkelstein altered very much his original directions, and advised a more liberal use of the sugars.

Last June I again began the use of this food; I am now able to report on 20 cases. Five marantic babies made brilliant recoveries, one marantic infant died after four weeks of this diet, one severe case of diarrhea in private practice, refused to respond to all the usual lines of treatment and recovered on albumin milk. One baby with malnutrition gained for a while but later was put on modified milk and did well. Another case of diarrhea seen in consultation, improved for four or five days and then the mother of her own accord fed something else. This baby died later. All the other cases made beautiful recoveries.

Dr. John Zahorsky: Dr. Brady's paper.

Dr. Zahorsky emphasized the importance of human milk in preventing infant mortality. No mother should take the baby from the breast without consulting a pediatrist. Often mother's milk does not agree, but our efforts should be to get the baby well and still maintain maternal nursing. Not long ago I had such a case in private practice, on account of acute digestive disturbances the infant had to be taken temporarily from the breast at three different times and yet she succeeded in nursing this infant until it was seven months old, when it was placed on mixed feeding. Even in severe cases of acid dyspepsia, with colic and watery stools much can be done therapeutically, and with time and patience the breast milk will be conserved. We talk about excessive fat or excessive protein in human milk, but there is nothing definitely known. I have a case now; the baby has diarrhea, vomiting and colic on mother's milk, and this has persisted for some time, and yet analysis shows nothing wrong with the milk.

It is really astonishing how many babies may be saved by a little human milk, and for many years I have recommended that in bad cases of inanition and atrophy, a little human milk be given with the artificial food.

Finkelstein deserves great credit for the masterful way in which he has drawn up his clinical pictures. His theories, however, will probably be modified in the future.

I have not used casein milk very much. In three cases it failed to accomplish what I had expected. I am not sure yet that it is very much superior to buttermilk or skimmed whole milk. It is rather difficult to prepare, still, the indications for its use should be worked out more clearly. It is not indicated in all cases of atrophy. As I have previously reported many of these cases do well on the whey and condensed mixture. A mixture in which there is a high carbohydrate content and high salts, just the opposite of the casein mixture.

Dr. A. S. Bleyer: Dr. Brady's paper.

I do not think that I have much to say except that I am gratified to hear both speakers say that they did not obtain any brilliant results with albumin-milk, I have not been able to see why one should. As I understand it, eiweismilch is a simple dilution of sugar and whey, the percentages of sugar and mineral matters are reduced and they are taken out by adding water and adding curd, otherwise they resemble the percentages of ordinary milk.

I do not see from the standpoint of clinical experience just how this new milk can be expected to help in decomposition cases. One thing is very sure, you cannot feed babies very long on food mixtures that have one and one-half per cent. of sugar in them. Now, if we add carbohydrates the mixture looses its identity and we have nothing much different than we have been using right along.

Analysis of albumin-milk I have seen recorded as containing as much as 3.65 per cent. of sugar, this may have accounted for some of the good reports although perhaps not prepared according to Finkelstein's instructions. As to that very obscure point as to sugar disturbances being the basis of most all the long-lasting wasting diseases, I am not able to understand in what way that can be for we know, as Dr. Zahorsky has just pointed out that these children do get well and thrive on feeding with carbohydrates, especially in these very decomposition cases where putrefaction will often yield to the presence of fermentation. It is well known that putrefaction will disappear in the presence of fermentation in the test tube and it is very probably true in the intestine.

Dr. Brady: (Closing).

Dr. Bleyer misunderstood me, probably I did not make myself clear. Finkelstein's original articles, describing the experiments and observations which finally led up to the employment of eiweismilch, first came out in 1907. Owing to the revolutionary nature of this teaching few took it up in this country. Abroad it received more attention. Eiweismilch the therapeutic outcome however is being tried by a few of the pediatricians of this country. My first results were very disappointing. Owing to an unfamiliarity with the method I did not understand the technic of its preparation or the way it should be administered. When I first made it, I used the curds from milk which had been inoculated with the lactic acid bacillus and allowed to stand. This is not proper—either pepsin or rennet should be used. Furthermore the curds must be passed through a hair sieve; we used at first a wire sieve.

It was very difficult to get the casein content to pass through the nipple and as a result a large amount of the mixture would remain at the bottom of the bottle. A liberal addition of carbohydrates I believe is very important for a successful result. This is one of the main reasons why my first babies did not do well. At St. Ann's we have not had any diarrhea for three years and hence have not been able to test the food in this condition. Owing to my early poor results I felt justified in selecting only the hopeless cases; those in which former experience taught us died without the assistance of breast milk.

Dr. Bleyer asks about the stools. It must be understood that these nutritional disturbances are not the effect of bacteria, but the result of the food itself. An infectious dysentery is of course recognized. A nutritive disturbance arising in the course of some other disease like "grippe" is termed Parenteral infection. There is a great difference in regard to the tolerance which various babies show towards sugar. A baby at St. Ann's under the care of Dr. Clemens was so susceptible to slight increases of sugar that it was called the "sugar baby." It did well in the institution by carefully watching the percentages of sugar in its mixture; it was adopted out and I heard later died after being fed condensed milk.

RETROSPECT OF CURRENT PEDIATRIC LITERATURE.

Infectious Diseases

Under the Charge of

ST. GEO. T. GRINNAN, M. D.
Chief of Clinic in Practice of Medicine, Medical College of Virginia; Visiting Pediatrist, Memorial Hospital, Richmond Va.

Vaccines in the Treatment of Bacterial Infections in Infants and Young Children.—Forty-nine cases have been treated by Dr. M. E. Still by means of vaccines, (*Med. Rec.*, Aug. 6, 1910). Thirty-nine cases were either acute or chronic otitis media lasting from a few days to two years, local treatment having been ineffectual. Twenty-eight of the thirty-nine cases were cured, ten improved while under treatment and one did not improve. Two cases of suppurating glands of the neck and two cases of multiple abscesses of the scalp were cured.

Two cases of pneumonia were treated by the vaccine, one case improved so rapidly that the crisis occurred in three days, and in the other case the symptoms improved very rapidly. Two cases of erysipelas were cured, one being a child one year old, the other an infant eight days old. The case of acne took six months to effect a cure and required an injection of 800,000,000 staphylococcus aureus each week. In all thirty injections were given.

One case of ophthalmia was treated. Five per cent. argyrol was used, and the vaccine. This case apparently cured when last seen.

In nearly all cases of the otitis media the earlier the vaccine was used the quicker the cure, one or two vaccines being sufficient when used early. Young babies were cured quicker than the older children.

The sub-acute cases required numerous injections. From 200,000,000 to 800,000,000 staphylococci were given once a week. Streptococci were given in doses from 40,000,000 to 80,000,000 bacteria, some times daily, but in most cases at intervals of two or three days. Pneumococci were given in doses of 40,000,000 every day or two. Gonococci were given in doses of 20,000,000 to 100,000,000 once a week or oftener.

In each case the clinical symptoms was the guide for the amount and interval of the injection.

Study of Streptococcus Antibodies in Scarlet Fever with Special Reference to Complement Fixation Reactions.—Dr. J. K. Kolmer, Philadelphia, says that his investigations of the glands in twenty-six cases of scarlet fever failed to show any organisms resembling those described by Vipond, (*Jour. A. M. A.*, Dec. 9, 1911, p. 1942). Dr. Kolmer believes that the following deductions are correct: "A streptococcus produces a specific antibody up to a certain limit. The specific nature of these antibodies is seen by complement fixation reactions in high dilutions between a streptococcus immune serum and its antigen. With low dilutions the specific nature of the antibody is not brought out. Not only do scarlet fever streptococci tend to produce their own specific immune serum but likewise streptococci causing septicemia and those causing non-scarlitinal angina, tend to produce their own immune serums."

The fact that Dr. Kolmer found 11.2 per cent. reactions positive in scarlet fever tends to show that streptococcus infection in scarlet fever severe enough to produce immune bodies is not so common as is generally believed. He shows that only one of three toxic cases yielded a positive reaction, the severe cases being frequently due to an overwhelming effect of the true scarlet fever virus without secondary streptococcus infection.

It is difficult to understand how streptococcus immunization can prevent the disease when it has been clearly proven that a streptococcus is not the cause of the disease. The immunization may mitigate the streptococcus infection which occurs in eleven per cent. of scarlet fever patients. Dr. Kolmer demonstrated that the injection of a streptococcus virus did raise the streptococcus opsonic index, but it required a relatively large number of injections.

Dr. Kolmer says that the reports of Russian physicians as to the efficiency of streptoccocus vaccine should be reviewed with skepticism.

Experimental Measles in the Monkey with Special Reference to the Leucocytes.—Ludvig Hektoen describes a series of experiments in which monkeys (*Macacus rheus*) were infected with measles from human blood. Drs. Goldman and Anderson did similar experiments, and the work done by different experimentors coincides in all essential points, (*Journal A. M. A.*, Dec. 2, 1911).

The measles appeared in the monkey after an incubation period of six days or longer and consisted essentially in a short fever with or without distinct macular rash. The virus must be obtained from the human being soon after the rash has appeared. Both sets of observations show that in the monkey the leucocytes appear to behave very much as they do in human measles. "That is to say, that preceded by a more or less distinct leucocytosis there occurs a leukopenia of variable degree in what would correspond in a general way to the latter part of the pre-eruptive and the early part of the eruptive periods. In our animals this leukopenia involved principally the neutrophils, the lymphocytes being somewhat increased."

It cannot be definitely stated that the protein received from the human blood does not play a factor in the blood change.

Monkeys that have been injected with human blood for other experiments have not shown the blood changes found in the monkeys that were infected with measles. The conclusion is therefore drawn that the leukopenia observed is due to the virus of measles.

Diseases of the Skin and Uro-Genital System

Under the Charge of

EBERHARD WILLIAM DITTRICH, M. D.

Instructor of Diseases of the Skin, New York Post Graduate School and Hospital. Dermatologist, German Odd Fellows' Home and Orphan Asylum; Dermatologist Northwestern Dispensary; Ass't Surgeon, New York German Hospital Dispensary, Urology.

A Case of Anasarca in a Nursling of Two Months without any Renal Lesions.—Drs. Nobecourt and Paisseau, (*Bulletine de la Societe de la Pediatrie de Paris*, Seance du 20 Juin, 1911). A case of anasarca in a nursling of two months without any renal lesions is an interesting condition, which deserves to be reported.

P. C., two months old was admitted to the hospital des enfants-malades with a history of sudden emaciation followed by oedema. The baby was breast fed. The oedema resisted all treatment and the child died about four weeks after the first manifestations.

No hereditary taint could be found.

There were some disturbances of digestion but they were so insignificant in character that the pathological condition could not be attributed to them. Outside of a transient slight albuminuria there was nothing in the uropoietic system to account for it. The heart sounds were normal and no fever was observed. No diagnosis could be made anti-mortem while the autopsy revealed some elucidating facts.

The examination of the kidneys did not show any involvement of this organ which might have been the cause of the œdema. The liver however showed fatty degeneration to such a degree that the regular microscopic picture of its tissue was markedly distorted.

Liver lesions of this kind have been described by Lerebollet and Marcorelles. They are generally due to a severe toxic infection. In this case the condition apparently was due to gastro-intestinal troubles, but we must not forget on the other hand that the affection of the gastro-intestinal tract was only slight during life and there were no marked symptoms from the liver. Now, the phenomena due to the retention of chlorides in the system are well known (in the course of gastro-intestinal trouble). Some have been described by Dr. M. Achard and others. These consist of œdemata that develop in nurslings in the course of gastro intestinal disturbances and in older children in the course of severe colitides. A functional derangement of the kidneys may be excluded. Hutinel would rather ascribe them to a profound disturbance of nutrition, than to renal origin. Nurslings seem to have a remarkable tendency to retain water in their tissues in certain pathologic conditions in the presence of Na. Cl. Digestive disturbances seem to increase this tendency, reducing the output of chlorides at the same time.

The part the hepatic involvement plays in this process remains obscure. These lesions may be thought to be a consequence of the initial toxic infection.

Pruritus Ani, With Report of Three Cases.—Dr. Donley C. Hawley, Burlington, Vt., (*The Canada Lancet*, October 11, 1911). The American Proctological Society, 26 & 27 Jun., 1911. The author does not refer in his address to causes as intestinal parasites, errors in diet, etc., which can easily be relieved by attending to the causative conditions, nor to symptoms resulting from a pathologic condition of the skin. Causes which often are not appreciated at all are brought forth in this discussion.

The nearly constant local cause of pruritus ani is abrasion and ulceration of the anal canal, which usually are accompanied by blind sinuses underneath or by fissures in the muco-cutaneous lining.

Some cases are also associated with chronic proctitis, which may be a factor in producing or increasing the anal abrasions or ulcerations.

He suggests the following treatment:

With the patient well anaesthetized, the anal canal is dilated, and the ulceration, together with the sinuses and fissures, is thoroughly cauterized with the Paquelin cautery, as well as the entire area of chronic dermal inflammation, with a view of destroying ulcerated areas, the thickened and altered skin and the pathologic condition of the altered nerve fibres.

He effected a complete cure in his three cases.

He claims superiority over the operation devised by M. Mitchell Banks, inasmuch as his (Hawley's) is not followed by extensive sloughing.

Foreign Bodies In the Rectum.—Dr. T. L. Hassard, Pittsburgh, Pa., (*The Canada Lancet*, October 11, 1911), from the American Proctological Society, 26 & 27 Jun., 1911. The importance of making a rectal examination in cases of obstinate dysentery is demonstrated by the cases cited by the author.

In a baby, two years old, part of a match lodged squarely in the lumen of the lower bowel, was found to be responsible for an obstinate "dysentery" of three months duration. The chief symptoms in this case were bloody stools, mucous and tenesmus.

In the second case with like symptoms the bone of a frog's leg was found in the rectum of a boy.

In two other instances substances were found in the rectum of adults that had been introduced under the influence of a depraved and perverted sexual instinct.

Case III.—Self introduction into the rectum of a prescription bottle, a Baltimore oval, 3-oz. The mouth was upward. It was removed by means of a blunt hook.

Case IV.—Adult, aged 45. Had been a cow puncher. At present has no occupation. Came to Allegheny Hospital. Examination showed the presence of a very thin beer glass, two inches wide at the top and three and one-half inches tall. Sphincters contracted. No bleeding and but little discomfort. In attempting to remove it, it was broken. After it was extracted, there was considerable bleeding from the rectum. He developed pelvic peritonitis, and a rather large tumor developed in the left iliac region. This passed away and he was discharged in about three weeks, not altogether well of the pelvic pains.

General treatment in all cases was rest in bed, with frequent washing of the bowel with one per cent. solution of creolin and normal salt.

The Correlation of Diseases of the Kidneys, Heart, Digestive Tract and the Organs of Respiration.—Dr. E. G. Epler, Fort Smith, (*The Journal of the Arkansas Medical Society*, Little Rock, Ark., August, 1911). The writer has observed in the great clinics at home and abroad indifference as to the possibility of correlation of kidney diseases and the affections of the nose, throat, heart and lungs. The men in charge were too intent on operative treatment to pay attention to the condition of the stomach, the liver or the kidneys, or to bother with non-specific internal medication.

The several organs of the body are so intimately connected that no one may be altered by disease without the others becoming, to some degree, affected. Especially important are the effects of the diseases of the kidneys upon the heart, vascular system, lungs and other parts concerned in respiration; also the organs of digestion or vice versa.

To allow the most perfect elimination of effete and toxic matter, the vascular supply of the kidneys is large and peculiar.

Primary and all important kidney troubles may be masked and often escape notice.

Thus the signs and symptoms of chronic interstitial nephritis may be at times insignificant and may not be perceived until irreparable damage has been done.

Many causes are held to be effective in producing an interstitial nephritis, such as business troubles, worry, excitement, inactivity of the digestive organs and the accumulation of toxic matter in the system.

Impure air, hard work, red meats, condiments and tobacco are thought to be causative. Exposures to cold and wet, syphilis and alcoholism are also responsible for the development of interstitial nephritis. Senility prediposes to it. The obstruction in a sclerotic kidney will tax the heart to a greater extent and result in a congestion of the other organs.

Treatment of such a condition requires the just appreciation of both primary and secondary pathologic changes and their interrelations.

The author cites cases where a pleurisy due to interstitial nephritis was diagnosed as a double pneumonia, a case of indigestion in an old lady which proved to have the same cause, quincy sore throat, muscular rheumatism and biliousness likewise were due to kidney trouble. Another case where a patient came to the author's office to have an "elongated uvula" removed. On examination author found an œdema of the soft palate, which was caused by an interstitial nephritis.

The correlation of renal diseases, pneumonic affections and heart failure is well appreciated by many practitioners.

The author suggests a laboratory examination of the urine to be made with almost all affections, however insignificant they may be.

Two Cases of Verrucae Planae Juveniles.—Drs. Serrano and Sains de Aja, (*Actas Dermo-Syfilograficas*, March, 1911). In one of these cases a direct transmission could be shown from one brother to the other. After thoroughly removing the warts (I suppose by curettage) Tr. of Iodine was applied which resulted in a complete cure.

Observation on the Action of Salvarsan in Syphilis.—Dr. Heidenreich, (*Russki Wratsch.*, No. 20-22.) The conclusions, Dr. Heidenreich arrives at after a large experience are the following:

1. Salvarsan kills surely and speedily all or the greatest part of the bacteriae of syphilis without injuring the human organism.
2. But we do not always succeed in destroying all of them, as it has no deep penetrating power.
3. Recurrences may be more severe than the manifestations before its injection.
4. One injection is not sufficient but should be followed with a second or

third one, and mercury and iodine may be needed to complete the cure.

(This modifies the value of salvarsan to a great extent, as we formerly have obtained the same results with mercury and iodine alone.—E. W. D.)

Wassermann's serum reaction must be made frequently to watch the results.

5. The intravenous method is the method of choice.
6. Salvarsan is of decided value in persons that cannot submit to a long course of treatment.

Diseases of the Respiratory System

Under the Charge of

W. C. HOLLOPETER, A. M., M. D.

Professor of Pediatrics, Medico-Chirurgical College, Philadelphia.

HARRY LOWENBURG, M. D.

Assistant Professor Pediatrics, Medico-Chirurgical College, Philadelphia.

Diagnosis of Tuberculosis in Children.—The significance of the Von Pirquet reaction in the diagnosis of tuberculosis. In the (*Farschritte de Medicin*, 1911,) Blumel concludes as follows:

1. The Von Pirquet test is a general specific.
2. For diagnostic purposes it is decisive mostly in the first and second years of life.
3. In later life the clinical findings and observations are before all else decisive for the diagnosis. At all events the intensity of the reaction is to be estimated with caution.
4. On the other hand, aside from the exceptions mentioned, repeated negative results of the test generally exclude an active tuberculosis.
5. In the prophylaxis of tuberculosis the Von Pirquet test is of great value, especially in school children.

Influence of Acute Diseases on the Milk Secretion.—F. Marre analyzed the breast milk of women suffering from scarlet fever, measles and influenza and found that the effect of acute fevers on the milk secretion was to diminish the water and lactose and to increase the butter fat, casein and salts. He recommends that mothers suffering from infections of short duration should continue lactation, supplemented, if necessary, by artificial feedings.

Infectious Diseases in Negroes.—H. M. Folks, (*Journal of the American Medical Association*, 1911), states that negroes are relatively more immune than whites to malaria, typhoid fever, intestinal diseases, tonsillitis, mumps, influenza and yellow fever. With an experience of twenty years Folks cannot recall a case of scarlet fever, diphtheria, mumps or tonsillitis in pure blooded negroes. On the other hand mulattoes are more susceptible to these infectious diseases, especially syphilis and gonorrhea. Negroes of all shades are extremely susceptible to tuberculosis and also to measles.

Failure of "606" to Abort Syphilis.—C. F. Marshall, (*Boston Journal of Children's Diseases*, March, 1911), states that all expectations that "606" will abort a case of syphilis have failed, and arrives at the following conclusions:

1. There is no proof that an abortive cure of syphilis or (theralica sterilsans magna) can be affected by "606" or any other drug.
2. There is no evidence that tertiary or parasyphilitic manifestations can be prevented by arsenobenzol; in fact it would take many years to prove it.
3. Arsenobenzol certainly has a rapid healing effect on certain syphilitic lesions, chiefly of the ulcerative type, but this effect is not constant and is frequently temporary.
4. If arsenobenzol is indicated at all, it is chiefly in those cases which are not influenced by mercury, but such cases are rare. Moreover there are cases which resist both methods of treatment.
5. Arsenobenzol has numerous contraindications.

6. It appears to have little or no effect on visceral syphilis and parasyphilitic affections.

7. The injection, especially the intravenous method, is attended with grave risks to the patient.

8. In the present state of our knowledge there is no drug which can replace mercury in the treatment of syphilis.

In congenital or hereditary syphilis arsenobenzol, like mercury, may be given directly or indirectly through the mother's milk.

He also states that of five infants treated by the direct method three died within a few days after the administration, the doses being .04 gm. and .025 gm. In conclusion he ventures the opinion that even if there were no danger connected with the administration of the arsenobenzol, there is no justification for its employment in congenital syphilis, and that the dangers render its employment absolutely unjustified, He makes the following rather startling statement: "I would even go further and predict that should the treatment of syphilis, congenital or acquired, with this drug ever become general and replace mercurial treatment, there will be an increase both in the amount and in the severity of tertiary manifestations, and a rise instead of a fall in infant mortality."

Infant Feeding in Health and Disease

Under the Charge of

MAURICE OLIVER MAGID, M. D.

Adjunct Pediatrist Beth David Hospital, New York City; Assistant Visiting
Physician O. P. D. Pediatrics, Cornell University Medical College;
Formerly Physician in Charge of Infants' Milk Depot of
the New York Milk Committee, etc.; etc.

Top Milk and Whey for Infant Feeding (One Quart Daily up to end of First Year).—From whatever standpoint we may study the principles upon which successful infant feeding should be based, Dr. R. E. Van Giesen, in the (*Record*), says we eventually arrive at the main fact involved, that is, the gradual adaptation of the infant's digestive organs to a number of foreign substances which Nature fitted for the nurture and growth of a lower animal. One point to remember in using cow's milk as a substitute in infant feeding, is that the ingredients are practically altogether different from those found in human milk. While these substances are apparently similar they are not chemically or even physically identical. This is especially so with casein which is so radically different from human casein that it must be considered as a foreign body, capable of nourishing an infant only after it is modified.

To render innocuous this foreign body and yet preserve its nutrient properties is the main problem in all milk modifications. The best method for doing this is the simple method of dilution. It is wise and safe to accept this method, which is the condensed teachings of nearly a century of clinical experience, notwithstanding all study, analysis, comparison of calories, etc. Dr. Louis Starr's comment on this phase of the question is concise and appropriate: "We certainly need sacrifice everything to chemical accuracy."

Lactalbumin which is the second form of proteid in cow's milk is the soluble proteid and it resembles the proteid of human milk more than any other ingredient. It is the chief ingredient of whey to the extent of one percent. It is the most valuable asset in top milk and whey feeding because it enables one to give the needed amount of soluble digestible proteid with a minimum of casein—an achievement that insures success. The presence of lactalbumin in whey makes whey the best diluent we have. It holds the casein in finer suspension and prevents it from clumping into hard masses, thus obviating the use of weak cereal solutions until the amylolytic function is sufficiently developed to convert starch into sugar. Schlossman estimates the total proteid in human milk at 1.56 per cent., of which 63 per cent. is casein and 37 lactalbumin, and considers that the large proportion of lactalbumin is a great help to digestion, as it is a source of supply of a considerable amount of nitrogen, which the infant requires, in a form in which it is readily absorbed; whereas casein must undergo many complicated changes before it can be absorbed.

The large percentage of fat in top milk is less troublesome to modify than casein. When properly diluted with whey it produces no noticeable digestive disturbance. Fat-free milk, though containing over six per cent. sugar, if long continued as a food, is sooner or later followed by unmistakable evidences of malnutrition.

After diluting milk, sugar must be added to bring the total amount in the mixture to about six and one-half per cent. Pure granulated white cane sugar has been shown to be well borne by infants and often better digested than cow lactose.

Lime water (Liq. Calcis. of U. S. P.) in combination with the lactose of the whey and the added cane sugar to six per cent., is an anti-coagulant of casein of feeble power and is antacid.

The top milk used in calculating the formulae is the upper 10, 12, 14, 16 ounces, and the remainder of the milk is used for making whey. The percentages are calculated for four per cent. market milk, bottled and delivered before 6:00 a. m. The lowest measure of the cream line is three and one-eigth inches, the highest is three and seven-eighths inches. The fat is calculated from Chapin's middle column for four per cent. milk. The proteids are made somewhat lower than the estimates generally given.

TOP MILK PERCENTAGES.

Ounces	Fat	Proteid	Sugar
10	10	3.30	4.50
12	9	3.50	4.50
14	7.50	3.70	4.50
16	7	4.	4.50

For the preparation of whey, Hansen's junket tablets, which are made chiefly of rennin and common salt, will prove of great service, as one tablet coagulates one quart of raw milk at 98 F. in about eight minutes. When the surface of the milk begins to appear glassy and glistening and the whole mass moves in the vessel when tipped from side to side, the coagulated milk is broken up into fine pieces with a fork, stirred rapidly for about twenty minutes, then the milk is put on a stove or alcohol flame and brought to a temperature of 130 F.; then it is immediately removed. Heating the milk to 130 F. is very important, as it tends to destroy or inhibit the enzyme in the whey. The curd gathers into a tough mass. It is now strained through two thicknesses of clean bleached cheesecloth. The whey is then cooled to the temperature of the room and then put into bottles ready for the preparation of the day's food. Thirty-two ounces of milk thus treated will yield 28 ounces and 2 drams of whey and a smaller quantity will yield an amount of whey in proportion. The whey must not be made from top milk as it yields too much fat. Whey prepared by this method is a chylous looking fluid, opaque from the presence of fat. After removing the upper 10 ounces from one quart bottle of milk the whey will contain one per cent. of fat; after 14 ounces are removed .8 per cent. fat.

There is quite some difference in opinion as to when starch should be added to the infant's food. Some authorities, Korowin in 1873, and Shaw in 1904, claim that infants can convert starch in one-half per cent solution and Rotch claims that starch should not be added before the 11th or 12th month, but between these extremes there is a period (about six months) when a healthy infant will digest starch in small amounts. The cereal solution is best made by adding four teaspoonfuls of granum to one pint of water. Boil for 20 or 30 minutes. Water is now added to the pint mark and again brought to the boiling point. The solution is removed and bottled when cooled. This is a four per cent. solution of granum one dram of which contains two and one-half grains.

Dr. Van Giesen's formulae are calculated on the preceding principles and are measured in drams.

Initial Formula: For the first three days.

		Analysis		
		Fat	Lactalbumin	Sugar
Whey	6	0.48%	0.60%	6.00
Bolied water	3			
Lime water	1			
	10 drams			

Preparatory Formula: To end of fourth or fifth week. Introducing casein from ten ounces top milk.

			Fat		Proteid		Sugar
Top Milk	2	Top milk	2. 0	2.32	0.66	1.06	6.00
Whey	4						
Boiled water	3						
Lime water	1	Whey	0.32		0.40		
	10 drams						

10 drams Total solids, excluding salts, 9.38%

Sugar one-third dram (gr. xx)

After the infant shows that it is able to handle the casein proteid which is gradually introduced, into the body it is put on the basic formula which consists of equal parts (drams) of top milk, whey, boiled water, to which is added lime water from six to ten per cent. and sugar six per cent. The proportions in the mixtures will remain the same but the percentage of the individual ingredients will vary according as to whether the upper 10, 12, 14 or 16 ounces of the top milk is used. The fats will slightly decrease while the proteids will gradually increase. At the sixth month starch is added to balance the decrease in the fats.

Basic Formula: From about the end of the second month.

Top milk	3	x 8 =	24
Whey	3		24
Boiled water	3		24
Lime water	1		8
	10 drams		80 drams

The lowest basic formula will be 10 drams and the highest 80 drams or ten ounces. The basic formula total drams multiplied by two will give total grains of sugar to be added to bring the mixture to six per cent total sugar.

The strength of the food is gradually increased until at about the fifth month the infant will take seven feedings of 9-9-9—3 or 12-12-12—4. To make these formulae the upper ten ounces are not sufficient and the upper twelve ounces are used to prepare the day's feed. In the period between the sixth and ninth months there will be 5-6 feedings of 12-12-12—4=40 drams or 15-15-15—5=50 drams.

When it is desired to introduce starch into the food it will be found that granum is one of the best means to this end.

When the granum solution is introduced into the mixture, commence with a fraction of one per cent., by substituting one dram of the solution for one dram of boiled water, as:

Top Milk	15 drams
Boiled water (14 plus 1 dr. granum sol.	15 drams
Whey	15 drams
Lime wate	5 drams
Sugar	1½ drams

In the six feedings the total granum is 2½ x 6 15 grains or 1-12 of one per cent.

The granum solution is gradually introduced so long as no intolerance is noticeable, until all the boiled water is replaced, when the percentage will be 1.20 which is the limit of the basic formula. This happens at about the 14th month when the feeding capacity and the needs of the infant will begin to exceed the quart allowance and it may at this time be safely weaned.

Surgical Diseases of Childhood

Under the Charge of

WILLIAM A. EDWARDS, A. M., M. D.

Professor of Pediatrics, University of California, Los Angeles, Cal.

The Treatment of Chronic Nephritis in Children by the Edebohls Operation.—The number of children operated on by the Edebohls method and subsequently studied is not very large. Koplik did not submit his patients to the operation with the idea that irreparably damaged kidneys could be restored to their original integrity but with the humane purpose of making these little sufferers more comfortable. Mainly the relief of anasarca and uremia was the object hoped to be accomplished.

In four out of five cases this was attained and the patients were restored to an existence at least simulating health. In no case did the operation endanger life, the recovery from so-called shock and the anaesthetic was very prompt. Koplik, (*American Journal of Diseases of Children*, October, 1911), says that with the exception of one case all were carefully selected for the procedure of Edebohls after he had failed with a reasonable trial of well known internal methods.

He concludes that his series shows the absolute well being of the patients, in the successful cases, for great lengths of time after operation and this for greater periods than with medicinal agents and that the operation does not compromise the recuperative powers of the kidney. They further show that improvement does not set in immediately after the operation but only after the kidney has become accustomed to the new local circulatory conditions and that the well being of the patient is more striking than after recovery from medicinal therapy. It is inadvisable to operate in the face of acute uremic symptoms.

Spleen-Like Peritoneal Tumors Observed Six Years After Splenectomy for Rupture.—(*Milzartige Bildungen un Peritoneum, Beobachtet Circa 6 Jahre Nach Einer Wegen Milzruptur Vorgenommenen Splenektomie*). R. Faltin, Helsingfors. *Duetsche Zeitschrift fur Chirurgie*, Vol. 110, parts 1-3. A 16 year old boy had been operated upon by the author for traumatic rupture of the spleen six years before. The organ was totally removed. The operation was not followed by any untoward symptoms for five years. (Several blood examinations that were made revealed a normal condition.) The patient then began to complain of cramps in the right iliac region and lost some flesh and strength. A laparotomy was performed with a tentative diagnosis of appendicitis. At operation the entire visceral peritoneum was studded with pea to bean-sized, brownish-red, senile and pedunculated masses. They were smooth, covered by normal peritoneum and for the most part ambilicated. Upon microscopical examination these masses were found to very closely resemble the spleen in their structure. The author believes that these masses have resulted from an effort on the part of the peritoneum to compensate for the absence of the spleen; from a phylogenetic study Faltin concludes that the entire visceral peritoneum at one time functionated as the spleen.—*Int. Jour. Surg.*

Angiomata and Nevi.—Salomon in (*Deut. Zsch. f. Chir. Bd.* 109. *Hft.* 5-6), finds that in Biers' clinic the carbon dioxide method of treating superficial simple angiomata and diffuse vascular birth marks, telangiectases and brown pigmented nevi to be the most efficacious. It is not however adapted to plexiform angiomata and true cavernomata.

Separation of the Epiphysis at the Femoral Neck.—Dr. Stephan, (*Deut. Ztschr. f. Chir., Bd.* 109 *Hft.* 1-3), points out that fracture of the femoral neck in childhood is very rare, and can be detected only by X-ray examination.

On the other hand, separation of the epiphysis is much more common, although frequently complicated with fracture. The author has been able to collect five cases of fracture of the femoral neck or separation of the epiphysis, in one of which both conditions existed.

As regards treatment, weight extension after exact reduction, if necessary under anaesthesia, is to be employed for four or five weeks.—*International Jour. Surgery*, August, 1911.

The Relation of Adenoids and Hypertrophied Tonsils to Retarded Mental and Physical Development.—McCreary of Pittsburgh in a very well considered article, (*Medical Record, N. Y.*, September 2, 1911), concludes that hypertrophied tonsils and adenoids occur in individuals who present symptoms of hypoplasia resulting either from hereditary or developmental causes.

There would seem to be an intimate relationship existing between perversions of the internal secretions of the ductless glands and hypoplasia resulting in hypertrophied tonsils and adenoids.

Hypertrophied tonsils and adenoids are factors in retardation by their mechanical action as sources of reflex irritation and as impediments to the proper development of central centers concerned in speech. Removal of hypertrophied tonsils and adenoids is not sufficient in cases of marked defect, to bring about restoration to the normal.

Special training and the institution of measures directed toward the amelioration of the underlying hypoplastic conditions are necessary.

Appendicitis in Childhood.—We absolutely agree with Salzer, (*Wiener. Klin. Wochensch.*, No. XX, 1911). that the large mortality from appendicitis in children is not due to any special anatomical condition or peculiarities. Nor is it due to greater difficulties of diagnosis. It is chiefly due to the fact that patients are subjected to the proper treatment at too late a period, the proper treatment always being an operation.

This is due according to Salzer, to the public's lack of knowledge of early symptoms and the necessity for operation in children and to our inability to interpret symptoms of chronic appendicitis in the true sense.

We are too much accustomed to regard gastro-intestinal affections as peculiar to childhood and not as a frequent sign of serious disease.

If it is recognized, as it is in adults, the mortality will be reduced to the same level as in adults.

We should protect children in this respect against the neglect of their parents.

Orthopedic Surgery

Under the Charge of

JAMES K. YOUNG, M. D.

Professor Orthopedic Surgery, Philadelphia Polyclinic, Clinical Professor Orthopedic Surgery, Woman's Med. College, Pa.

Sarco-Iliac Relaxation: With Analysis of Eighty-four Cases.—(R. O. Meisenbach, Buffalo, Surgery, Gynecology and Obstetrics, May, 1911. Abstr. in *Am. Journal of Surgery*, June, 1911). The author classifies the cases as (1) traumatic (usually unilateral; (2) due to general debility (infectious diseases, lipomotosis); (3) due to pelvic congestion (uterine disease, pregnancy, menstruation) and (4) neurotic. Faulty attitude and flat-foot are predisposing causes. Treatment consists in maintaining hyperextension by plaster jackets or in Osgood brace.

Trypsin Treatment of Surgical Tuberculosis.—W. Baetzner, (*Archives f. Clin. Chir.*, Vol. 95. 1. Abstr. in *American Journal of Surgery*, July, 1911). This method of treatment was first used by Jochmann and Baetzner in 1908. The author reaffirms its usefulness in tuberculous abscesses of the soft parts, in fistulae following tuberculous adenitis in tuberculous tenosynovitis, and in tuberculous joint and bone disease.

Arthoplasty for Ankylosis.—Joseph Wiener, (*Am. Jour. of Surg.*, September, 1911). Partial ankylosis can be cured by such means as brisement force, hot air baths, massage, exercises and orthopedic appliances. For complete ankylosis resection was formerly employed, but this procedure only shortens and weakens the limb and is frequently followed by ankylosis. The interposition of absorbable or non-absorbable foreign bodies has not given good results. But the interposition of living flaps of muscle or of foscia with fatty tissue secures the desired end of a useful movable joint.

Arthoplasty is a valuable procedure in cases of bony or fibrous ankylosis of the tempero-maxillary, shoulder, elbow, hip and knee joints.

The Treatment of Impaired Function After Fractures About the Ankle.—S. Epstein, (*Am. Jour. of Surg.*, October, 1911). The usual causes of the disability of the ankle following fracture are edema and swelling, joint adhesions, tender callus, muscle stiffness, ligamentous contractions, nervous hyperesthesia and fear of use. For the treatment of these various conditions the author uses active and passive motion, resistance movements, massage, foot and leg machines (Zander, etc.), hot applications, hot air (for exuberant callus), and apparatus (ankle brace, flat-foot arch).

Rheumatoid Arthitis, Treatment of. Oppenheim.—(*Progress Medical*, May 13, 1911. Abstr. in *Monthly Cyclop. and Med. Bul.*, September, 1911). The diet should be liberal and varied, large doses of cod liver oil are given during the winter season. When the urine shows a low acidity, phosphoric acid is administered. Arsenic and iodine are to be relied upon chiefly for internal medication, the former as sodium arsenate or as Fowlers' Sol. the latter in the tincture (gtt V after meals and gradually increased). Deep injections of thiosinamine may be tried.

Early Operations for Psoas Abscess and the Treatment of Hip Joint Diseases.—Jas. K. Young, (*The Med. Council*, August, 1911). The author describes his modified Treves postenor incision for erocution of psoas abscess. An incision three inches in length is made parallel with the posterior spine and two and one-half inches distant. The sheath of the erector spinal muscle is divided, then the quodratus lumborum. The transverse process of the third lumbar vertebra is located and the muscle detached from it. A blunt instrument is thrust into the abscess in the psoas muscle, and the abscess is washed out with boric acid solution and drained. Drainage is maintained but a short time.

The indications for operation are poros contraction, high temperature, tenderness over the transverse, process of the third lumbar vertebra and leucocyptsis. The X-ray and tuberculin tests should be employed in diagnosis.

The author treats acute hip joint disease by combined fixation and traction secured by the use of a special brace extending from the chest to below the heel with the longitudinal upright posterior. Traction is secured by means of a foot piece, while perineal straps afford the counter traction and the weight of the body. Crutches and a high shoe are used.

This brace is worn for one or two years until the acute symptoms have disappeared. It is then replaced by a convalescent walking hip splint of the Shaffer type.

Treatment of Hip Disease as Based on Its Pathologic Mechanics.—Henry O. Feiss, (*Ohio State Med. Jour.*, April, 1911). A knowledge of the pathologic mechanics of hip disease is essential to its proper treatment. The disease begins as a small focus in the epiphysis of the head of the femur. Here is found a cavity whose shell breaks down under the superimposed weight of the body. The disease invades the joint and the roof of the acetabulum, the point of the weight bearing suffers destruction. Therefore the first effort of treatment should be to remove the weight from the diseased hip, Hoffa and Lorenz notwithstanding.

The second principle of treatment is to prevent deformity, or malposition.

These two results are secured by some mechanical appliance that will fix the part and remove weight. The author believes that a proper traction brace does this better than a plaster spica. Hygienic treatment is of great importance but cannot take the place of the mechanical treatment. The use of bismuth paste injections is dangerous.

The Advantages of Braces Over Plaster Jackets in Potts' Disease.—Feiss, (*Am. Jour. Orth. Surg.*, November, 1910). A well fitted brace, such as the Taylor back brace or one of its modifications, secures and maintains better fixation and support than a plaster jacket, which, of necessity, becomes loose in a very short time. The brace secures pressure over the deformity; it is lighter, cooler, cleaner, conceals nothing. But the greatest advantage of the brace is that the surgeon can control with it the stresses that are necessary

BOOK REVIEWS

Dorland's American Illustrated Medical Dictionary. A new and complete dictionary of terms used in Medicine, Surgery, Dentistry, Pharmacy Chemistry, Veterinary Medicine, Nursing, Biology, and kindred branches; with new and elaborate tables. Sixth revised edition. Edited by W. A. Newman Dorland, M. D. Large octavo of 986 pages, with 232 illustrations, 119 in colors. Containing over 7,000 more terms than the previous edition. Philadelphia and London: W. B. Saunders Company, 1911. Flexible leather, $4.50 net; thumb indexed, $5.00 net. W. B. Saunders Company, Philadelphia, London.

Since the day when "Dunglison's Medical Dictionary" held the field exclusively, a number of excellent medical lexicons have appeared, and this is one of the best.

The fact that this dictionary has passed through six revisions, and has been reprinted thirteen additional times during the past eleven years, evinces its popularity and at the same time is a fitting testimony to its author,—expressing the value and usefulness with which the work is esteemed by the profession.

The present edition has been thoroughly revised and reset, incorporating some seven thousand new terms which are defined. In the make up, an addition of twelve lines to a page has, seemingly, not added to the bulk of the book. The strong, flexible cover, the thin, fine quality of bible paper, and, above all, the clear, legible type, makes the book a comfort to the seeker after knowledge. The student and practitioner will find the eponymic tables of diseases, methods of treatment, signs, symptoms, with the table of poisons, and the posologic and therapeutic table to be a time saving arrangement.

The immediate success of Dorland's Dictionary is due to features that distinguish it from others of its class. It gives a maximum of matters in a minimum of space at a reasonable cost. Of especial value to the laboratory worker are the tables of metric and common weights and measures compared; the tables of various micro-organisms, stains and tests. Particularly helpful and time-saving to the student are the tables of arteries, muscles, nerves, regions of the human body, stains, solutions, triangles, tests, and the comparative tables of weights and measures.

The pronunciation of every word is given in this dictionary, while many others only give the accentuation. A special feature is the derivation or etimology of words. The derivation being given in all cases in this work. The illustrations deserve special commendation, especially those in colors, showing the diphtheric membrane and Koplik's spots in measles.

The reservation of capitals for proper names only, with a full list of terms used in dentistry and veterinary medicine and surgery, are new features in this edition. Another new feature is the introduction of biographic information, but we regret that more is not said about the men who have made medical history. The publishers appreciate the unusual value of this work and as a result, they hand you a volume in flexible morocco truly a luxuriant specimen of book making.

The Practice of Medicine, A Text-book for Practitioners and Students, with Special Reference to Diagnosis and Treatment, by James Tyson, M. D. Emeritus Professor of Medicine in the University of Pennsylvania and Physician to the Hospital of the University; Physician to the Pennsylvania Hospital, President of the College of Physicians of Philadelphia; Member of the Association of American Physicians, etc. Fifth edition, revised and enlarged, reprinted with corrections. With five plates and 245 other illustrations, price $5.50 net. Philadelphia, P. Blakiston's Son and Company, 1012 Walnut Street, 1911.

The demands for a revision of this practical work have come thick and fast, so that we now have the opportunity of revising the fifth edition of this stupendous work on the "Practice of Medicine." The most important changes in the present edition will be found in actual additions; the section on Infectious Diseases has been thoroughly revised, diseases of the blood have been brought up-to-date and the treatment of tuberculosis modernized.

The author has carefully condensed the subject matter, rewriting anew many subjects. The latest methods of diagnosis, as well as the more recent advances in therapeutics, have been introduced. In fact, nothing seems to have escaped the author's vigilant eye. This work not only represents the work of a practitioner of great experience, but of a careful culling of the facts set forth in contemporary literature by one who well understands the art of separating the true from the false.

Few teachers in the country can claim a longer apprenticeship in the laboratory and at the bedside, none a more intimate acquaintance with students, since in one capacity or another he has been associated with the University of Pennsylvania and the Philadelphia Hospital for nearly thirty years. Moreover, he entered medicine through the portal of pathology, a decided advantage to the writer of a text-book.

In closing this all too brief review we still predict that, as a text-book on practice, there is none better written in the English language, and that it is destined to be the leading text-book in the medical schools.

This is a book for the desk and not for the shelf. We have never examined a book with which we were more pleased, and to commend this volume is both a pleasure and a duty. To Dr. Tyson the profession are under many obligations, and to the publishers, who appreciate a good work, we commend their business tact and rare sagacity for placing this work before the profession in a style worthy of its contents.

The Treatment of Diseases—A Manuel of Practical Medicine, by Reynold Webb Wilcox, M. A., M. D., LL.D., Professor of Medicine, (retired), New York Post-Graduate Medical School and Hospital; Visiting Physician, St. Mark's Hospital; Member of the Committee of Revision of the Eighth (1900) Decennial Revision of the U. S. Pharmacopeia. Third revision, thoroughly revised and enlarged. Price $6.00 net. P. Blakiston's Son and Company, 1012 Walnut Street, Philadelphia, 1911.

Frequent revisions of text-books on the "Treatment of Diseases" are necessary in order to be kept abreast with advanced teaching. To those familiar with the first editions of this work on the "Treatment of Diseases," this edition needs no commendation, other than the assurance that it has been thoroughly revised and brought up-to-date. Dr. Wilcox's book is really broad enough to be called a "Practice of Medicine," with the sections on Treatment are much amplified as compared with the conventional Practice. Etiology, Pathology, Diagnosis, Prognosis and Symptoms are discussed before treatment is considered. Practical medicine might have been a better title for the work than the one selected by the author.

The style of the book is exceptionally clear, concise and interesting. Hardly more than half a dozen pages are devoted to any one disease, and yet the essential points of each disease are fully given. The modes of treatment are brought down to date and the author gives the dietetic and general rules of treatment with exceptional fullness. The book is not an extended treatise for the specialist, but the general practitioner will find it a most useful work, not only as a reference book upon the rarer diseases, but also as a work which he will wish to consult frequently in the diagnosis and treatment of common diseases.

In the light of the author's purpose to meet the practical needs of the physician the book impresses us as a wholly adequate performance. Its eminently practical character should render it peculiarly acceptable to the general practitioner. Thus, under Indicanuria, an exceedingly simple test is described and the more elaborate ones entirely ignored.

From a literary standpoint, the excellence of the text is beyond criticism. The author's intimate knowledge of his subject, his exceptional training in the tributary sciences, his store of well digested clinical data, and the judicial manner in which he handles disputed questions combine to place him in the front rank of modern clinicians and therapeutists.

The printers and publishers realize the great worth of the volume and give it all the art in bookmaking for which they are justly famous and turn it from their press rooms on elegant paper and with a handsome red cloth binding to stand daily use.

The Concise Oxford Dictionary of Current English. Adapted by H. W. Fowler and F. G. Fowler, authors of "The King's English," from the Oxford Dictionary. Price, $1.00 net. Oxford: At the Clarendon Press; New York; 32 W. 33rd Street, Henry Frowde, 1911.

This is a handy, complete and useful English dictionary duo decimo 1041 pages, partly encyclopedic founded upon the great "Oxford English Dictionary." As the title states, its vocabulary is limited to current English, still nearly every word will be found defined that any reader of modern English is likely to encounter.

In order to condense such a mass of material into so small a space it has been necessary to resort to special type and diacritical marks, which are at first sight confusing, but which become intelligible enough after a careful reading of the explanatory preface. The spelling is more like that of American text-books than one would expect in an English dictionary. The final consonant is not doubled in derivatives of verbs such as rivet and level, though the editors balk at traveler and give only traveller. They frankly acknowledge their inconsistency in this spelling and in the varying use of the hyphen in compounds, confessing their inability to do aught than "welter in the prevailing chaos." In the etymology the Greek words are written with Roman characters, the fact being recognized that the great majority of users of the dictionary are unable to decipher the Greek letters.

The convenient size of the book, the wealth of the vocabulary, the mass of information compressed into small space, the authority of the Oxford Dictionary upon which it is founded and the concessions to American usage will doubtless make this, as it deserves to become, a popular dictionary for all users of the English tongue.

PEDIATRICS

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EDITORIAL

THE VALUE OF INTERNAL REMEDIES IN PEDIATRIC PRACTICE.

Amongst internal remedies alcoholic stimulants take a high place. Children reduced by severe illness respond well to the action of alcohol, and a few timely doses of this medicine have often, in a doubtful case, turned the scale in favor of recovery. So, also, weakly children with poor appetites and feeble digestions often benefit greatly by an allowance of wine with their principal meal. Stimulants may be prescribed for the youngest infants, and in cases of great weakness may be repeated at frequent intervals. When the patient is very young and requires energetic stimulation, a small quantity of wine or brandy often repeated is to be preferred to a larger quantity given at more distant intervals. The remedy should not be continued too long. It must be remembered that a stimulant is not a tonic. It is given for an immediate purpose, and should be withdrawn or greatly reduced in quantity when the object has been attained.

Tonics, such as quinine, iron, the mineral acids, and vegetable bitters, are also of great value in the treatment of disease in the child. But they require to be given with judgment, and must not be administered indiscriminately because the patients look weak and pale. A feeble looking, pallid child is not always to be benefitted by iron and other tonics. Such a condition is often dependent upon a chronic form of dyspepsia, the result of repeated catarrhs of the stomach. In such cases a proper selection of food, and alkalies given to diminish the secretion of mucus and neutralize acidity, will soon produce a marked improvement in cases where tonics have been given without good results. It is only when local derangement has been remedied that the tonic becomes useful. The same remarks apply to cod liver oil. This valuable remedy is inappropriate so long as any digestive derangement remains uncorrected. When the alimentary canal has been brought into a healthy state, the oil is of enormous service, and may be given in suitable doses to the youngest infants. It must be remembered, however, that the power of digesting fats in early life is not great. Under twelve months of age ten drops will be a sufficient quantity to be given on each occasion; and if any oil is noticed undigested in the stools, even this small quantity must be reduced.

In cases where, although nourishment is urgently required, oil cannot be digested, the remedy may be rubbed into the skin. The external application of oil is of service in all cases of chronic weakness and wasting. It is useful not only as a means of introducing nourishment, but also as an agent in promoting the action of the skin, which in most forms of chronic derangement is apt to become inactive and dry. The application should be made at night. Any oil is useful for the purpose, and it is not indispensable that cod liver oil be employed. The oil should be warmed and then applied to the whole body with a piece of fine sponge. At the same time if there is any special weakness in the back or elsewhere, vigorous friction with the oil may be used to the part it is desired to strengthen. Afterwards the child should be put to bed in a flannel night dress.

In the administration of drugs to young subjects, we must remember that the dose is not always to be calculated according to the age of the child, but that children have a curious tolerance for some remedies and as curious a susceptibility to others. Opium, it is well known, should be given with caution. The remedy is, however, of extreme value, and if care be taken to begin with only a small quantity, and to postpone a second dose until the effect of the first has been ascertained, no ill effects can possibly be produced by the narcotic. Thus, for a child of twelve months old suffering from purging, if one drop of laudanum has not produced drowsiness, a second may be given in six hour's time; and the remedy will be well borne three times a day.

Belladonna can be taken by most children in large quantities. Sometimes the characteristic rash is produced by a small dose, but a much larger quantity will be required to dilate the pupil, and a further considerable increase before we can produce dryness of the throat or other physiological effect of the drug. It is often necessary to push the dose so as to produce dilation of the pupil. Many cases of nocturnal incontinence of urine show no sign of yielding until some symptoms are produced indicating that the system is responding to the action of the remedy. A child of twelve months old will usually take fifteen, twenty, or more drops of the tincture of belladonna three times a day; and often we can push the dose at this age far beyond this limit.

Besides belladonna children bear well quinine, digitalis, arsenic, ergot, and many other remedies. Mercury rarely salivates a child, but has often a powerful effect in deteriorating the quality of the blood. A child is usually left excessively pale at the end of a course of this drug.

MALIGNANT VISCERAL RHEUMATSIM OF THE HEART IN THE CHILD.

Weill (1) and Mouriquand (2) describe a form of rheumatism affecting the heart in childhood, insidious in character and suddenly fatal in effect. The apparent attacks of rheumatism are so slight as not to be deemed of any importance and may go on appearing for weeks, months, or even years. The child is eventually brought for treatment, not for rheumatism, but of dyspnoea and pain at the level of the precordial area. Usually mitral insufficiency of some standing is noticed and a few pericardial sounds of recent origin. Rest in bed and treatment apparently bring about complete relief. More careful observation shows that the daily temperature is not normal, oscillating between 37.5 and 38.5 C. (99.4 and 101.2 F.), and paleness persists. Another attack comes and goes. These alternations of improvement and relapse are characteristic of the form; but nothing seems to point to any danger.

The final phase sets in quite insidiously and without warning. The temperature is raised 39–39.5. Tachycardia, always regular, reappears in greater intensity. The cardiac symptoms are less marked owing to the weakness of the myocardium. The pulse is rapid and weak. Vomiting and hemoptysis set in. The child dies rapidly in collapse. Post-mortem, the heart is found hypertrophied and dilated; there are old and recent pericardial lesions, some chronic endocarditis ending in mitral inadequacy and a certain amount of stenosis. Histologically, acute myocarditis is found.

In such a case the symptoms revealed by the stethoscope are mitral insufficiency not of recent origin, and a symptom little known, which, in the absence of all friction and much earlier than that, betrays the pericardial lesion, so common in malignant rheumatism of the heart. This is Josseraud's symptom, and is characterized by the extremely jarring noise of the second sound at the level of the pulmonary area. It precedes by several days the classical signs and pericarditis and allows these to be foretold. It points not only to pericarditis at the level of the base of the heart, but also to the possibility of deeper lesions, so often associated with this pericarditis. When this symptom is present in a child, prognosis must be very reserved.

The treatment of this visceral cardiac rheumatism seems to be beyond all really effective measures. Before a definite cardiac lesion has occurred, the cause of the lesion itself must be dealt with. Every attack of rheumatism in a child, however slight and however benign, should be most carefully watched and thoroughly treated with salicylates. The heart should be kept under observation for weeks. All tachycardia, all precordial pain, whether or not accompanied by a rise of temperature should be looked upon as serious, especially if Josseraud's symptom is noticed. The most active means to use are the hypodermic injections of sodium salicylate recommended by Professor Bouchard. The salicylate is dissolved in twice its volume of water and from two to four grammes of this drug can be injected at the same spot without setting up local reaction. Weill and Mouriquand have tried the addition of iodothyrin to the salicylate. Cardiac tonics are called for and of these digitalis is far and always the best. Carefully given, it reduces the tachycardia and relieves the pain. They prefer to use crystallized digitaline in a solution of 1-1000. The action is prompt. The heart of a child attacked by parenchymatous myocarditis offers a remarkable resistance to the toxic effects of digitalis. No double rhythm is produced, and all the heart symptoms improve notably.

(1). *Practitioner.*

(2). *Annales de Medecine et Chirurgie Infantiles.*

PRECOCIOUS SEXUAL IMPULSES.

To attach importance, to ancestry, to parentage, to conception, to gestation and even the first infancy of the child may be considered by some as wandering away from the sphere of our subject, which is far from being the case. All our growing knowledge tends to show that equally with his physical nature the child's psychic nature is based on breed and nurture, on the quality of the stock and on the care at the early moments, when care counts for most, to preserve the fine quality of those stocks. When the period of infancy is past, we have not reached the foundations and potentialities of sexual life; we are, in fact, in the majority of cases witnessing its actual beginning. We are not now called upon to discuss the disputable point as to how far such manifestations at this age you can call normal. A slight degree of menstrual and mammary activity sometimes occurs at birth. It is claimed by some that the nervous and sexual activity has its first spring even at this early period and as the years go by an increasing number of individuals joins the stream until at puberty practically all are carried along in this great stream.

The question of sexual hygiene, more especially in its special aspect of sexual enlightenment, is not, however, dependent on the fact that in some children the psychic and nervous manifestations of sex appears at an earlier age than in others. It rests upon the larger general fact that in all children the activity of intelligence begins to work at a very early age, and that this activity tends to manifest itself in an inquisitive desire to know many elementary facts of life which are really dependent on sex. The primary and most universal of these desires is the desire to know where children come from. No question could be more natural; the question of origin is necessarily a fundamental one in childish philosophies, as, in more ultimate shapes, it is in adult philosophies. Most children, either guided by the statements, usually the misstatements, of their elders, or by their own intelligence working amid such indications as are open to them, are in possession of a theory of the origin of babies.

Thus it is that at a very early stage of the child's life we are brought face to face with the question how we may not wisely begin his initiation into the knowledge of the grest central facts of sex. It is perhaps a little late in the day to regard it as a question, but so it is among us, although three thousand five hundred years ago, the Egyptian father spoke to his child: "I have given you a mother who has carried you within her, a heavy burden for your sake, and without resting on me. When at last you were born, she indeed submitted herself to the yoke, for during three years were her nipples in your mouth. Your excrements never turned her stomach, nor made her say, 'What am I doing?' When you were sent to school she went regularly every day to carry the household bread and beer to your master. When in your turn you marry and have a child, bring up your child as your mother brought you up."

RACE SUICIDE vs. FLOODS OF BABIES.

The large birth-rate in Japan is evidently giving some concern to statesmen, and the facts should be studied by those well-meaning Americans who are much concerned over the dire results of race suicide. The editor of *American Medicine*, October, 1911, commenting upon this subject says, Ex-President Eliot, of Harvard, has joined forces with ex-President Roosevelt, and is quoted as saying that eight is the normal number of children, for there will be six to grow up, if we estimate a 25 per cent. mortality from unavoidable accidents. Our population would then be trebled every thirty years or so, and in two centuries would amount to 65,000,000,000! As the feeding of such a crowd is utterly impossible, it merely means that they will starve unless "expended" in war. Mr. Melville E. Stone, of the Associated Press, in a notable address to the Geographical Society quotes a Japanese statesman to the effect that prior to the invasion of western culture the Japanese produced two million babies annually, but most of them died and the population remained fixed. Thanks to modern sanitation, they now live, and the problem of feeding them is now worrisome. The islands always were jammed full anyhow, and their history is a long, wearisome succession of famines, in spite of intensive cultivation of every inch of ground. They are feverishly at work building up industries to make money to import food, but still there is unspeakable distress and the surplus tends to stream out in search of food, instead of dying of starvation as in the old days. Yet here are famines still, as in 1904, during the war. No wonder they cry for land like the ancient Germans and Huns, and no wonder it is easy to raise armies, and no wonder they will fight for markets like the equally prolific Germans say they too will do. Were it not for these floods of babies, there would not be such a demand for "dreadnaughts," nor the men to sail them. So, let us have more babies, and still more babies, as food for gunpowder. The race for armaments depends on the race for population, and one cannot be reduced unless the other is. Think of these things a bit, you people who dread race suicide.

WANTED—Copies Jan. issue, 1912.

The demand for extra copies of the January 1912 number of Pediatrics has been so unusually great that the files are completely exhausted, we will, therefore, be glad to receive copies of this issue from our friends and will gladly pay 25 cents each for same.

PEDIATRICS PUBLISHING COMPANY,
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New York City.

PEDIATRICS

ORIGINAL ARTICLES

BRONCHOPNEUMONIA IN INFANCY AND CHILDHOOD.

BY

LOUIS FISCHER, M. D.
Visiting Physician to the Willard Parker Hospital, etc., New York.

The etiology of pneumonia concerns us sufficiently to warrant us in isolating every child from the healthy members of the family. The discharges from a coryza, or from a cough contain the infection which disseminates the disease. Can we abort a pneumonia? This is answered by some with a negative, and by many other equally careful observers with a positive reply.

From a pathological standpoint it seems almost impossible to prevent a pneumonia if bacterial infection gives rise to inflammation involving the air vesicles or the minute ramifications of the bronchi. Notwithstanding the apparent impossibility of aborting this disease, we should at least endeavor to use antiphlogistic means, such as would eliminate toxic impurities from the blood, through the skin, kidneys and bowels.

Influenza Pneumonia.—Bacterial invasion begins in the rhino-pharynx and in the crypts of hypertrophic tonsils, hence the treatment instituted should be as above described: first, the elimination of poison by active catharsis; second, the local application of half-strength Lugol's solution with the aid of a spray atomizer, or better still by applying the Lugol solution with a cotton swab, behind the uvula, into the choanae. The pharynx and tonsils should receive one thorough application of this diluted Lugol solution. This iodine application is to be made once only. It permeates the deeper structures, hence is valuable in the beginning of an infected tonsil or rhino-pharynx.

Bronchopneumonia.—This type of pneumonia is frequently described as catarrhal pneumonia. Because of its anatomical peculiarity in affecting lobules or lobular areas, rather than lobes of the lung, the disease is described as lobular pneumonia. It is this type of pneumonia that is usually met with after the system has been devitalized by the acute infectious disorders. We therefore frequently find broncho-pneumonia as a sequel to or a complication of measles, diphtheria, typhoid, or whooping-cough. This type of pneumonia does not terminate in a crisis, but the temperature comes down gradually by lysis. There is no distinct duration or period over which a bronchopneumonia may run. In one child it may terminate in two weeks, while in another case with the same form and severity, the disease may continue and extend over a period lasting many weeks or months.

Not infrequently the small lobular areas of consolidation will coalesce, forming an inflammatory type resembling the lobar or croupous form of pneumonia. I have frequently seen the inflammatory areas extend, so that we have before us the so-called "wandering type" of pneumonia.

The following case of bronchopneumonia was admitted to my hospital service:

Mary D., seven months old, was admitted to the hospital March 10. She was bottle fed since birth. Had been sick nine days before admission, with fever, chills, and cough; there were no convulsions. She vomited the day of admission for the first time. The family history was negative. The past history showed nothing of importance; there were no previous illnesses. Physical examination of the thorax showed marked dullness on percussion at the lower lobes on both sides. There were also subcrepitant rales. For three days there was no change. On March 20th there were dullness, bronchial breathing and friction sounds on the right side. Crackling rales were also heard on the left side. The abdomen was distended. There was marked evidence of a rachitic rosary.

On March 11th, ten cubic centimetres of a polyvalent pneumolytic serum were injected into the cellular tissue of the abdomen. Before the injection of serum the blood count showed: White blood-corpuscles, 16,100; polynuclear leucocytes, 46 per cent.; lymphocytes, 45 per cent.

Three hours after the injection the blood count showed: White blood-corpuscles, 17,000; polynuclear leucocytes, 60 per cent.; lymphocytes, 40 per cent. This case remained in the hospital about two weeks, when it was discharged cured.

This type of pneumonia is met with in that class of children offering the least resistance. We must therefore expect this type in children having a rachitic history. In like manner syphilitic children are very prone to this type of bronchopneumonia. If we are dealing with a weakened system, undermined by tuberculous infection, then an additional bronchopneumonia (tuberculous pneumonia) offers little hope for recovery. I have frequently met this type of infection while making rounds in the diphtheria wards of the Willard Parker Hospital, and it is noteworthy that a large number of cases of diphtheria complicated by this type of bronchopneumonia terminate fatally.

It is hardly in the province of this paper to describe the mode of infection or the specific pathogenic bacteria that bear a causal relation to this disease; suffice it to say that the profound toxemia caused by the constant filtering into the system of the toxins generated by the micro-organisms paralyzes the vital nerve centres of the heart, and disturbs the function of the vital organs of the body. It is a noteworthy fact that the glands, such as the peptic glands, do not functionate properly, and their secretion is as a rule inhibited by most of the toxins of the pathogenic bacteria associated with bronchopneumonia.

What has been said concerning the peptic glands applies as well to the function of such important organs as the liver. Equally important is the fact that the kidneys do not perform their physiological function during the course of a severe infection like bronchopneumonia. The toxin, by virtue of its power of permeating all the tissues and organs, saturates the kidneys and destroys, by its action, their power to properly perform their excretory duty; and when excretion of toxins does not take place and the poison is stored in the system, we frequently have an additional complication added to an already severe disease.

The origin of an acute renal congestion and hemoglobinuria originates from such toxins. In like manner, both nephritis and pyelitis have been seen by me during the course of a severe pneumonia. This added danger militates against a favorable prognosis because organic lesions, even though their acute symptoms subside, may leave focal areas of inflammation, or may terminate in chronic or organic lesions.

From what has been said we can see that from the very beginning the disease requires most careful observation. The physical signs must be studied and noted day by day. The best results will be obtained by him who, mindful of the possible complications, watches for them, and meets every symptom as it arises.

Symptoms and Diagnosis.—The most important symptoms noted are those of a bronchial catarrh or a severe type of bronchitis. Fever is usually present. It is of an irregular type. Some children may have a temperature of 100° F. in the morning and the evening temperature may range between 103° and 104° F. In another class of cases the temperature may range between 101° and 102° F. in the evening. This type of pneumonia occasionally presents the type known as the "step-ladder" type. The temperature rises from 100° or 101° F. each day rising about one degree higher, until the temperature reaches 105° F.

In such a case of bronchopenumonia, it is necessary when the fever presents similarity to typhoid fever, to note the presence or absence of the gastro-enteric symptoms, the enlarged spleen, and rose-colored spots, before eliminating typhoid fever. The crucial test is the presence of the Widal reaction in the blood, but this is not present before the end of the first week or the beginning of the second week of typhoid. The respirations are usually increased in frequency. There is also dyspnoea. The difficulty in breathing can best be studied by observing the intercostal spaces and also the epigastrium, which sinks at each inspiration. The alae nasi distend with each inspiration. There is an anxious expression of the countenance. Cyanosis affecting the face, the lips, and frequently the nails can be noticed. The respiration is very superficial and labored. It is irregular and very jerky. Some cases may have 44 to 50 respirations per minute, while others may have from 60 to 70 respirations per minute.

Physical Examination.—The physical examination of the thorax shows moist rales, sibilant or sonorous rales, or coarse mucous rales; at times distinct bronchial breathing accompanied by a metallic sound is heard. Percussion will usually show marked areas of dullness. There is also resistance on percussion. Where small areas are affected we must be on the lookout for dullness due to enlarged bronchial glands. When the disease terminates favorably the temperature falls, the pulse assumes a more regular character; the heart sounds, which formerly were feeble, appear louder, stronger and rhythmical. The cough will be more frequent, the respiration less frequent and not so superficial. Children who formerly were apathetic now appear to notice everything, and are very sensitive on being handled, and especially so during an examination. The physical signs of a diffuse bronchitis, and the diffused areas of bronchial breathing disappear. The bronchial breathing which existed before now becomes vesicular in character. The pulse, which formerly was greatly accelerated, and the respiration, which was very frequent, now both return to their normal state. The whole character of this affection has no specific rule, but drags along without a distinct termination, differing from that condition so well-known and described as croupous pneumonia. It is not rare to note in the pulse, respiration and temperature the signs of an apparent cessation of the inflammatory condition, but to find on examination of the lungs that fresh inflammation has begun.

We can therefore see that a bronchopneumonia frequently continues as an inflammation which spreads from portion to portion and from lobe to lobe of the lung, and thus devitalizes the system. The symptoms affecting the gastro-intestinal tract and those referred to the genito-urinary organs are the same as are found in croupous pneumonia.

In describing lobar pneumonia, it is usually spoken of as a self-limited disease. I shall speak of this later on. When we consider bronchopneumonia, I would rather speak of it as *an unlimited disease.* It may last weeks and it is just as likely to persist many months. While many cases have a favorable termination, quite a number end fatally. The reason for this frequent fatality is that the disease runs a protracted course, it undermines the constitution and it is by no means rare to have a tubercular bronchopneumonia follow the primary bronchopneumonia. When suspicion points to a possible development of tuberculosis, then a valuable aid in sustaining the diagnosis of tuberculosis is found in the cutaneous tuberculin reaction.

Cutaneous Tuberculin Reaction.—With the aid of a von Pirquet scarifier or an ordinary vaccinating lancet, we scarify two small areas. The site chosen is the one ordinarily used for vaccination. In scarrifying, care must be taken not to produce a bleeding surface. A drop of tuberculin is rubbed into one of the scarified areas, the second scarified area is left as a control. No after-treatment is necessary, except that the usual rules of cleanliness should be carried out. After twenty-four hours, or in a tardy reacrion after forty-eight hours, in a case of tuberculosis, there is a distinct redness, and in some cases a papular swelling is noticed. If an erythematous redness ten mm. in width appears, this should be regarded as a positive reaction, and as indicating the possibility of tuberculosis. Other tuberculous cases may not give this cutaneous reaction with tuberculin until forty-eight hours after the inoculation has been made. These are known as tardy reactions. Of greater value than this positive reaction is the absence of such reaction, for by it we can, as a rule, exclude tuberculosis.

Treatment—Children cough, and then swallow the sputum instead of expectorating it. When cough is violent, and the secretion from the bronchi is abundant, then large quantities of purulent material will be swallowed. The elimination of such putrid discharges demands either a laxative such as castor oil or an emetic. I make it a rule to leave a standing order during my hospital service, to give a teaspoonful or more of castor oil every morning. Viscid secretions in young infants demand emetics. After poulticing for twenty-four hours, I order (for an infant one year old), 1-30 grain of apomorphine hypodermically, to be repeated in one hour if no emesis results. A child five years old may receive 1-24 grain apomorphine, repeated if necessary to produce emesis. An emetic should never be ordered immediately after feeding or nursing, but rather should it be given one-half hour before the next feeding is due.

One word concerning apomorphine. In tablet form apomorphine deteriorates. It should, therefore, always be prescribed in a freshly prepared solution, made from the powder.

Another rapid and valuable emetic is sulphate of copper. This should be given by mouth, in a dose of one grain (0.06 Gm.) dissolved in water, and repeated in one hour if no emesis results from the first dose.

The treatment of a bronchopneumonia consists in relieving symptoms that are urgent, such as cough, dyspnea, and torpid functions due to glandular inactivity. To relieve cough and loosen viscid secretions during the course of a bronchopneumonia, we must remember steam inhalations, such as twenty drops of beechwood creosote in a pint of steaming water. This can be put in an ordinary croup kettle or a steam atomizer. I am not in favor of placing children with cyanosis or dyspnea, due to small areas of consolidation, in a tent, thus shutting off oxygen. My plan is to permit a free current of air but to throw the jet of steam so that the air surrounding the patient is impregnated with this vapor. The frequency of the steam inhalations depends on the urgency of the symptoms. In some cases I order the steam to be used from five to ten minutes, and repeated every hour. Other cases require a more prolonged steam inhalation, say fifteen to twenty minutes in each hour. Besides beechwood creosote I use pine needle oil (ol. pin. pumil.) in the same dosage as creosote, previously stated. At times I combine pine-needle oil with an equal quantity of compound tincture of benzoin. If cyanosis persists and there is marked dyspnea in spite of the steam inhalations just suggested a warm flaxseed poultice, containing ten to twenty per cent. of powdered mustard, should be applied over the diseased portion of the chest, until local hyperemia is produced. If the skin is irritated by the use of mustard, we can continue the poulticing by using flaxseed, omitting the mustard, but with the addition of lard. These poultices are to be renewed once every hour, and covered with an oil-silk jacket. The local effect of cupping by applying dry cups to the posterior and anterior portions of the thorax should be remembered. Such cupping should be repeated twice a day, always choosing new places for their application, care being taken not to burn the skin.

The injection of a two per cent. camphor dissolved in oil, using ten cubic centimetres for each injection was tried in a series of 14 cases reported by me in *Pediatrics* for July, 1911. The germicidal action of camphor is recognized by many clinical observers. It has served also as an excellent diffusible cardiac stimulant. While one cannot rely on any drug in the treatment of bronchopneumonia, the use of camphor is well worth trying. The depressing effect of the toxins in this disease require diffusible stimulants such as carbonate of ammonia in doses of one grain for the first year and two grains from five to ten years, three times a day. Strychnine in doses of 1-100 to 1-60 grain, repeated three times a day is an excellent cardiac stimulant. A tub bath for two or three minutes, temperature 101° to 103°, followed by good friction with a towel stimulates the capillary circulation. These hot baths may be repeated morning and evening. They have a very quieting effect on the nervous system, hence they promote sleep, which is so important to promote convalescence. Water should be given very liberally for its diuretic and laxative effect and because it promotes diaphoresis. It is important to place children suffering from a bronchopneumonia in a semi-recumbent position, thus preventing as much as possible hypostatic congestion.

162 West 87th Street.

THE EARLY RECOGNITION OF TUBERCULOSIS IN CHILDHOOD.

BY

W. C. HOLLOPETER, A. M., M. D.

Philadelphia, Pa.

Tuberculosis has long been recognized as a contagious disease. If tuberculosis is contagious, then it is preventable; if preventable, it is curable. This syllogism, if true, throws the gauntlet at the feet of preventive medicine. In the far-reaching educational campaigns against tuberculosis by our profession, which is a strong illustration of our altruism, the major portion of the work has been directed towards helping the adult population. The medical profession has not sufficiently recognized the importance of this work among the young. Infancy and childhood is practically the virgin soil in which you find the early implantation of tuberculosis. It is the period of greatest susceptibility and the period of least resistance. I believe the adult tuberculosis is generally the secondary manifestations of this youthful implantation. A large percentage of the adult population have some form of latent tuberculosis, and may have passed through life without having suffered any acute expression of the disease. If this is true, and it has been thoroughly demonstrated, then the real field of efficient preventive work in tuberculosis is among the young.

There are two well-recognized paths of entrance of tubercular infection. First, through the respiratory tract; the direct entrance into the blood through the air cells of the lungs, which is the most frequent, and, second, through the glandular system, either through the respiratory or the alimentary tract. The entrance by the way of the glandular system in the vast majority of cases occur in infancy, due to some acute irritation; frequently the eruptive fevers are the etiological factors. Very early tubercular implantation, three years and under, frequently overwhelms the child, by reason of its feeble resistance and kill outright, usually in the form of tubercular meningitis. If the implantation occurs later, after four or five years, the tendency is to become latent. This latency increases with the age of the child, all things being equal. What we call tuberculosis in the adult is generally the second stage of the disease, and is usually brought out by some acute illness, which lowers resistance and causes an acute manifestation of this latent, yet persistent implantation. It is the province of altruistic medicine to anticipate and combat this dangerous first stage. Work of this kind is actually the true sphere of preventive medicine. The upbuilding of the young and at the time, if not before, the true incipiency of the disease. Work, well directed in early life will give nature the greatest amount of assistance at the time when she needs the help the most. Childhood is the constructive period of the individual, the time when the tendency to normal growth is at the highest, and we naturally expect the greatest return for the efforts expended and the hopes for the largest number of actual recoveries. Childhood is yet the undiscovered country of preventive medicine, and is truly the virgin field that offers the largest returns for the most efficient work in this line. A thorough knowledge of the anatomy and physiology of children with care and experience is necessary to reach an early diagnosis of tuberculosis.

Too frequently the disease makes a fatal advance before it is recognized. The many paths of entry and the wide range of clinical symptoms, with variety of pathologic changes multiply features which render the problem difficult of an early solution.

The frequency of tuberculosis in children is the strongest argument we can offer of the importance of its early recognition. It is eminently proper, therefore, before I mention specifically some of the signs of early implantation, to quote from the statistics of well recognized authorities:

"Albrecht of Vienna, found evidence of tuberculosis in 1,060, or 33 per cent. of 3 213 autopsies in children under twelve years of age. The youngest case was a two-weeks-old boy. Under one year there were 1,300 autopsies with 191 cases of tuberculosis, or 16.6 per cent. Between the first and sixth year there were 1,558 autopsies with 691 cases of tuberculosis, or 44.3 per cent. Between the sixth and twelfth year there were 178, or 50.1 per cent. of 355 autopsies. Comby, of Paris, has just published his series of 1,447 autopsies in children, among whom tuberculosis was found in 536, or 36 per cent. Under one year there were 685 autopsies with 112, or 16 per cent. tuberculosis. There were 327 autopsies between the ages of one and two, with 141 cases of tuberculosis, or 43 per cent. Over two years of age there were 435 autopsies, with 283, or 65 per cent. tuberculosis.

"Wollfstein, reported a series of 1,137 autopsies at the Babies' Hospital, in New York, on children under four years of age. Of these, 185 showed tuberculosis. Under one year the percentage of tuberculosis cases was 12 per cent.; during the second year, 33 per cent., and over two years 34 per cent.

"From the above it appears that Schlossmann is justified in concluding that 'it is by no means rare to find tuberculosis in children' and the nearer we approach puberty the oftener it is met with. The clinicians must look for tuberculosis in children of any age.'

"The modes of infection have a most important bearing on the diagnosis. Prenatal, congenital or hereditary tuberculosis is so rare that it can be disregarded. The question of transmission or the disposition is still undecided. The offspring of tuberculous parents show great susceptibility to infection and are apt to be poorly nourished, with low vitality. Comby argues that babies with malnutrition are found very often in families with no taint of tuberculosis, and that the special susceptibility is due to constant contact with tuberculous individuals. Remove the baby from the tuberculous mother immediately after birth and he claims there will be no infection. He insists that neither tuberculosis nor its disposition are hereditary—children are not born with tuberculosis, they acquire it. Infection during life may take place through the air (inhalation infection) and from food (elementary or ingestion infection). The inhalation form is probably by far the most common route. Holt found involvement of the lymph nodes and lungs in 99 per cent. of his autopsies on cases of tuberculosis and Albrecht found about the same proportion." (Quoted from Shaw.)

The decay of the teeth, both of the first and second sets, offers a fruitful field for the propagation and prolonged retention of foreign material in the child's mouth. Indeed the ulceration of the decaying teeth frequently favors the extension of the trouble to the adjacent glands and by the prolonged hyperemia lessens resistance, eventually favoring a glandular implantation of the disease. In ddition, the stream of pus constantly flowing into the child's stomach, lowers vitality, produces anemia and serves to convert a local irritation into a constitutional depression. Physicians frequently pay too scant attention to the care of the teeth of the child under their care. Dr. William Pepper, in a personal conversation with me some years ago, impressed upon me the fact never to encourage patients as to their recovery until I found them possessing a clean mouth. This statement was made, however, in reference to general disorders, yet it holds good in considering tubercular implantation.

A diagnosis of tuberculosis in young children is sometimes extremely difficult. Holt, in his wide experience, considers as probably tuberculous every infant who has been for any length of time in contact with a tuberculous parent, or other tuberculous member of the household. The history of tuberculosis in the family of a sick child is almost *a priori* evidence of the presence of some form of tuberculosis. Careful and tactful questioning is often necessary before the source of human contagion is established. Association of the child with tuberculous parent, or other consumptive is a matter of such importance in the diagnosis as well as in the prevention of the disease that every member of the family should be examined as a matter of routine. In the diagnosis, therefore, the family and previous history is most valuable. An impressive example is offered from my daily work. A few days ago I was called in consultation with an eye specialist who was treating a young child three years of age for corneal ulcer, which refused to heal. The family physician suspected syphilis and had the child on mercury, etc.—a close examination revealed a protruding lumbar vertebra, a commencing tubercular lesion of the bone. The history was more fully examined when it was discovered that the child's uncle (the father's brother) who had pulmonary tuberculosis, had lived with the child's family during the first year of the child's life, and had subsequently died. The child was found to have cervical adenitis, as well as bone tuberculosis. Other matter of importance to be noted in the anamnesis are the various predisposing causes of the disease. These include unhygienic surroundings, improper feeding, and the various childrens' diseases, especially important is the knowledge of measles and whooping-cough. Tuberculosis occurs more frequently in artificially fed infants. This, however, is no indication that the infection is always of the bovine type and contracted from the use of milk of tuberculous cows. Bottle fed babies have a greatly lessened resistance to any infection.

Glandular tuberculosis is undoubtedly the most frequent, due to the constant irritation of the mucous membrane in the mouth, nose, etc., in the growing child. If we do not have a subsidence of the cervical glands within a week the chances are we may call them chronic, and chronic enlargement of the cervical gland may be one of four diseases possible to produce this local enlargement, viz.: lymphatic leukemia, Hodgkin's disease, syphilis and tuberculosis. The first three are easily excluded and yet we are fearful to pronounce every enlarged gland (cervical) as tuberculous.

Hypertrophy of the lymphoid tissue of the nasopharynx undoubtedly lessens general resistance to all infections, but that such tissues often serve as a point of entry for tuberculous infection has not been proven. The studies of Nobecourt and Tixier are evidence against the view that adenoids and enlarged tonsils often stand in such relation to the disease. They are of importance in the diagnosis only, in so far as they present conditions prejudicial to normal respiration.

The clinical form which the disease takes in early childhood depends on various factors. The mode of infection doubtless has some influence, though less than was formerly supposed. Trauma may excite a bone tuberculosis, and the acute infections a glandular type. The most common types of the disease in early childhood *are glandular tuberculosis* (adenopathy), *tuberculous meningitis*, *acute miliary tuberculosis*, *tuberculosis of the bones and joints*, and *pulmonary tuberculosis.*

It appears from the statistics of Albrecht, Holt, Adams and Woods Hutchinson that pulmonary tuberculosis is much more common in early childhood than is generally supposed.

Grancher's demonstration of the frequency of tuberculous tracheobronchial glands at autopsy has shown that this condition is not recognized in the majority of cases during life, and statistics show that tuberculous children dying from whatsoever cause have tuberculous glands in from 80 to 100 per cent. of the cases. The great dangers to the child are that the deposits in these glands may extend into the lung or adjacent organ or may ulcerate into a blood vessel and produce a general miliary tuberculosis. They produce no symptoms characteristic in themselves and their presence is rarely detected by the ordinary physicial examination of the chest. The importance of diagnosing this bronchial gland tuberculosis has developed several special methods and alleged signs.

An early implantation of the mediastinum is more frequent than clinicians are willing to admit. It is likely to occur during any of the eruptive diseases, where superficial lymph nodes are involved. A recognition of this fact affords a warning of approaching danger, and gives the physician an opportunity to arrest the progress of the disease by prompt attention.

Some years ago, while I was spending a few days with Eustace Smith, at Shadwell, London, he demonstrated to me what I feel assured is a much neglected procedure in early diagnosis of tuberculous children. The signs of pressure on the veins, the dulness over the first bone of the sternum extending to a variable distance on each side, and the paroxysmal cough, point conclusively to caseation of the bronchial glands. The peculiarity of the cough is, indeed, often the first symptom leading us to suspect the nature of the disease. This is distinguished from the cough of pertussis, which it so much resembles, by the absence of crowing and of the terminal vomiting or glary expectoration. Such a cough, if unaccompanied by the ausculatory signs of pulmonary disease, is very distinctive of enlarged bronchial glands. The absence of these auscultatory signs is very important in the diagnosis, as a morning cough of a very similar character is occasionally heard in cases of fibroid induration with dilatation of the bronchi, and is sometimes also characteristic of catarrhal pneumonia.

If in the intervals of the fits of coughing there is anything approaching to an asthmatic seizure or the slightest percussion—dulness at the top of the sternum, little doubt can remain as to the nature of the disease. Alteration in the quality of the voice often accompanies the characteristic cough. If there is doubt in any case, the occurrence of signs of venous pressure at once changes our suspicions to certainty.

Well marked pressure signs are not, however, present until the swelling of the glands has become considerable. At an earlier period, and before the enlargement has become sufficiently great to cause symptoms so obvious, the diagnosis of the lesion is far from easy, as the symptoms by which it is accompanied are few and obscure.

At this time much assistance can be gained from the following experiment: If the child be made to bend back the head, so that his face becomes almost horizontal and the eyes look straight at the ceiling above him, a venous hum varying in intensity according to the size and position of the diseased glands, is heard with the stethoscope placed on the upper bone of the sternum. As the chin is now slowly depressed, the hum becomes less loudly audible, and ceases shortly before the head reaches its ordinary position.

The explanation of this phenomenon appears to be that the bending back of the head tilts forward the lower end of the trachea, which carries with it the glands lying in its bifurcation, and the left innominate vein, as it passes behind the first bone of the sternum, is compressed between the enlarged glands and the bone. In cases where this sign has been noticed, there has often been some slight dulness over the manubrium, leading one to suspect the existence of enlargement of the glands; and the occurrence of the hum thus produced is considered to be confirmatory of his suspicion.

The experiment does not succeed in cases of flat chest when there is no reason to suspect glandular enlargement, nor can the hum be produced by the thymus gland in a healthy child. This gland is immediately behind the sternum in front of the great vessels; enlarged bronchial glands lie behind the vessels in the bifurcation of the trachea. A swelling in front of the vessels does not appear to set up pressure on the veins when the head is bent back in the position described. In no case has the characteristic hum been produced, except where there was reason from other symptoms to suspect the presence of bronchial glandular enlargement.

The early diagnosis of tuberculous mesenteric glands is a matter of great difficulty. It is possible that glandular enlargement may be present, but it is unusual to recognize it until other symptoms occur which may lessen the value of the findings. Thus anemia, loss of flesh, and some gastric irritation will often precede any mesenteric deposit.

Some years ago while studying the character of the rectal mucus, I found the flora very interesting, and, quite oblivious of the fact that I might find tubercle bacilli, I was surprised on one occasion to encounter them constantly; and this occurred in a case where tuberculosis was not suspected. On palpating the abdomen I was rewarded by finding a small chain of glands following the vertebral column.

Subsequent study along these lines has given me the impression that enlarged glands may be found in young children quite frequently and in a quiescent state; they may have existed thus for years without any constitutional expression.

To study the abdominal glands in a child I place him in the knee-chest position or on the back with the knees well flexed and the head well curved on the chest. When the glands are situated in the groin or under the arm, superficially there has occurred usually a massing of the glands and with some decided constitutional toxemia which can no longer be regarded as pre-physical signs.

Thirty years ago Eustace Smith described a sign which is still associated with his name. It consists of hearing a systolic murmur over the upper part of the sternum when the head is thrown back as far as possible. This murmur is always recognized in the beginning of whooping-cough, and it is only of suggestive value. Many physicians lay stress on differences in the breath sounds at the two apices.

D'Espine attaches importance to the bronchophony and pectoriloquy posteriorly. He states that bronchophony normally ceases at the level of the seventh cervical vertebra, but when the bronchial glands are enlarged it may be extended downward to the fourth or fifth dorsal vertebra.

The use of the X-ray is now an important aid in the diagnosis of diseases of the chest. If the glands are considerably enlarged their shadow can be detected. Pfahler and Hochsinger have pointed out that special care is needed in the interpretation of radioscopic plates, for the shadow of the heart in young children or for certain peculiarities on account of the proximity of the heart to the thymus gland and to the high position of the diaphragm.

The *temperature* has a very important diagnostic value in the tuberculosis of adults, but its significance is not so satisfactory in infancy.

The studies on the *blood* of tuberculous patients at the Phipps Institute confirm the observations of foreign observers that the anemia of tuberculosis is of the chlorotic type—that is, the hemoglobin is reduced disproportionately to the red cells. Hultgen examined the blood in 28 cases of incipient tuberculosis and in 28 cases of chlorosis and found a similar blood picture. One of the features is a lymphocytosis. In pulmonary tuberculosis Holt believes examination of the blood may give a useful hint. A low leukocyte count—under 10,000—is said to favor tuberculosis, but a high one—over 20,000—does not exclude it. The percentage of polymorphonuclear cells is, as a rule, higher in pneumonia than in the tuberculous processes.

The *opsonic index* in the diagnosis of tuberculosis in young children is certainly not of more value than in adults, while the difficulty in carrying out the test is greatly increased. The "twelve honest" drops needed to secure a suitable leukocyte "cream" would with great difficulty be obtained at frequent intervals from a struggling infant.

The examination of the *sputum* in young infants was considered impractical until Holt called attention to the ease with which the sputum can be obtained. He reported a series of 67 cases of pulmonary tuberculosis in children under two years of age. Fifteen of these were under six months of age. Tubercle bacilli were detected in over 80 per cent. of the cases, although the disease in most cases was not advanced, judging from the symptoms and physical signs.

It is well known that infants cough up bronchial secretion into the pharynx and immediately swallow it. Hunting for tubercle bacilli in the stomach contents is a hopeless task. Holt's method is to excite a cough by irritating the pharynx with a small bit of muslin in the jaws of an artery clamp. The secretion is readily secured on the muslin when it is brought up by the cough. Muslin is to be preferred to gauze or absorbent cotton. Time and patience are required, for, in most cases, repeated examinations are necessary.

The use of *tuberculin* for diagnostic purposes dates back nearly 20 years, when Koch described the "tuberculin test." A slight amount of fever in the suspected patient is a contraindication to its use.

The *cutaneous* tuberculin reaction was first described by von Pirquet in 1907. This consists of a skin vaccination with tuberculin carried out in a similar manner to that for vaccinia. This test has grown in favor and is widely employed. It is simple, easy of application and absolutely without danger or unpleasant effects. Its use is most applicable in children and its results are to be relied upon. As latent tuberculosis is rare in infants a positive reaction is a warning to be heeded.

Wolff-Eisner, of Berlin, inspired by von Pirquet, found, by instilling a drop of a weak solution of tuberculin on the conjunctival mucous membrane in tuberculous subjects, that there was a constant and specific reaction. This he called the *conjunctival* tuberculin reaction. Calmette, of Paris, about a month later, published a series of similar experiments with identical results, but undertaken independently. He employed the term *ophthalmic test.* This test was almost universally used at first, but lately it has become unpopular, as a number of instances of serious injury to the eye have been reported.

Moro, of Munich, recently found that he could obtain a specific reaction on the skin of tuberculous individuals by the inunction of an ointment containing tuberculin. This he termed the *percutaneous* test. The chief advantage claimed is that it is less sensitive than the cutaneous test and does not react so often to latent tuberculosis. Monti compared the two tests in a series of 43 known cases of tuberculosis and found a reaction from the cutaneous test in 98 per cent., and from the percutaneous test in 88 per cent. Moro's test is to be selected both for ease of application and certainty of results.

Hamburger has very recently emphasized the diagnostic importance of what the Germans term the "*stichreaktion*" This is the local reaction at the point of entry of the hypodermic needle after the injection of a minute amount of tuberculin. Epstein first described the reaction and Escherich called attention to its diagnostic importance. The technic consists of injecting one mg. of Koch's old tuberculin subcutaneously. When positive there will be a slight redness after six to eight hours. The next day there will be more inflammation with some induration. This induration with brownish-red discoloration persists for five or six days. Hamburger applied this test to cases which did not react to the cutaneous test and found that it is more reliable. Both tests were made on 509 children. The cutaneous test was positive in 33 per cent. and the "*strichreaktion*" was positive in 53 per cent.

The "*strichreaktion*" should always be noticed in connection with the subcutaneous tuberculin test. This has been done for a number of years at the Adirondack Cottage Sanitarium where the phenomena occurring at the site of the injection had been noted.

Dermatologists have recognized for years the existence of small papules on the skin in cases of tuberculosis. Their histological picture, the detection of tubercle bacilli, and experiments on animals prove their tuberculous origin. Boeck, in 1900 proposed to term these the exanthemata of tuberculosis.

Hamburger was the first to call the attention of pediatrists to the great importance of these papules in the diagnosis of tuberculosis in young children. He found them in nearly all his cases of tuberculosis in infants. These papules or tuberculides, are frequently overlooked, as not more than two or three can be found on the entire body. They are small, slightly raised, round papules, red in color, but later on often turn brownish. The crest is covered with a scale which can easily be scraped off, leaving a small crater-like depression in the center. Removing this scab does not cause any bleeding and there is never any tendency to ulceration.

You will notice from the statistics mentioned that tuberculosis exacts an unusually heavy demand in childhood, and from the many diagnostic signs mentioned that we possess the means for its early recognition.

To conclude with a brief summary I wish to emphaize the fact that tuberculosis is the most prevalent of all diseases.

That it is most frequently implanted in early infancy and never eradicated.

That careful living will keep it latent throughout life.

That adult tuberculosis is largely a secondary manifestation of youthful implantation.

A CASE OF FRAGILITAS OSSIUM.

BY

WM. PEARCE COUES, M. D.
Boston, Mass.

Fragilitas ossium is a term sanctioned by good authority to describe all cases of brittle bones. As has been pointed out by Goldthwait, Osgood and Painter, many cases of so-called fragilitas ossium are in reality osteogenesis imperfecta, but as Nichols has shown, there remain a small number of case not associated with any traceable intrauterine disease where the process must be differentiated from true osteogenesis imperfecta. This case seems to belong to this latter class

N. F., about nine years of age, was seen July 29th, 1911. There was a history of a fall from a piazza to the ground, shortly before, a distance of only a few feet, the child striking on the right ankle in inversion. Examination showed a healthy appearing boy. There was considerable swelling about the right ankle. There was no ecchymosis at this time and no abnormal mobility was detected. There was a great deal of tenderness over the external malleolus. The leg was put up temporarily in a pillow splint. In a few days there was considerable ecchymosis around the joint, and extreme pain on palpation over the external malleolus. A radiograph was taken which showed the interesting conditions to be described.

On inquiry it was found that N. F. had received many previous fractures His troubles began at about two years of age. He has had nine different fractures since then.

At that time he received a fracture of the tibia near the ankle, which tibia not stated. This was caused by a fall from a trunk to the ground.

2d. A thigh fracture, from slipping in a hallway and falling to the ground.

3d. Fracture of both bones of the leg, caused by a fall from backing off a wall five feet high.

4th. Fracture of both bones of the right arm, caused by a fall on the stairs.

5th. Fracture of both bones of the left arm, caused by a fall from stumbling on some wire in the road.

6th. Fracture of a phalanx near the joint, caused by another boy twisting the fingers.

7th. Fracture of a metacarpal, caused by a blow from a broom handle.

8th. Present injury. Separation of lower epiphysis of the fibula. The boy was well developed and nourished. The head was somewhat square, but there was no rosary and the epiphyses were not enlarged. The legs were straight. The sclerotics were of a peculiar slaty-blue color. It is of interest in this connection that I learned of a family on Cape Cod who have very brittle bones and who have this marked slaty-blue color of the sclerotics.

The last injury, separation of the epiphysis of the fibula, was put up in plaster, and healing was quick, in short, differed in no way from that in a boy without such a history of repeated fractures.

A Case of Fracture of the Carpal Scaphoid in a Child.

Frank F., 12 years of age was seen December 8th, 1911, There was a history of a fall while running a few hours before, the boy falling with the hand in front of him. He thinks with the wrist flexed against the body. Examination showed several points of interest. The wrist showed marked swelling on the dorsum, extending to the radial and ulna styloids. Here the swelling abruptly stopped, leaving a rather striking appearance. Much pain on palpation over the dorsum on the wrist; increased on deep pressure over the snuff-box. A diagnosis of fracture of the carpal scaphoid was made before a radiograph was taken. The X-ray confirmed the diagnosis and showed well a crack running across the distal part of the scaphoid. No other lesion demonstrated by X-ray. Fixation by posterior splint.

Diacondylar Fracture of the Humerus.

Theodore H., six years of age was seen in October, 1911. There was a history of injury to the right elbow by a fall two weeks before. Just what position the arm was in at the time of the fall could not be ascertained. A doctor was called who told the parents that if the swelling that was then present had disappeared by the next day, the arm was not broken. Examination showed slight ecchymosis over the region of external condyle. No swelling but marked tenderness here and sharp limitation of extension and flexion. The X-ray showed a crack running across the lower part of the humerus just at the condyles; fixation by internal angular splint. Perfect recovery of extention and flexion with good result.

Separation of the Epiphysis of the Os Calcis.

Leo H., 11 years old was seen November 10, 1911. About six weeks ago he injured the right leg at the heel by catching it in a stairway in such a way that he had to give a strong upward pull on the heel to extricate his leg from the obstruction. There had been more or less pain on walking ever since, and the heel has been very tender. Examination showed thickening about the posterior quarter of the heel in the neighborhood of the tendo-achilles. It was extremely painful to pressure here. There was no ecchymosis and no teno synovitis grating felt on flexion and extension of heel. Adhesive strapping was used for a short time;

pain still persisted and X-ray showed tearing of the epiphyseal line of the calcis without displacement. It is of interest to note that the chief nucleus of the os calcis is apparent at the sixth month of foetal life; a shell-like epiphysis at the back appears from the seventh to the tenth year, and it begins to unite to the body of the bone at fifteen and is solid in about another year. In this case as short period of fixation in plaster of Paris with crutches resulted in prompt relief.

A Bonecyst Mistaken for Fracture of a Metacarpal.

Ramona M., 14 years of age, was seen October 24, 1911· The history was that she had fallen the day before while exercising in a gymnasium, striking the ground with her hand under her. Examination showed at this time no demonstrable bony lesion, but there was some effusion on the dorsum of the hand and wrist. October 31st there developed, or at least was found for the first time, marked pain over the head of the third metacarpal bone. Exquisite tenderness to pressure here. The X-ray showed a bonecyst; with fixation the tenderness gradually disappeared, and the patient was discharged in a short time. The question of any other lesion beyond a crack in the metacarpal bone had not been considered, and had it not been for the radiograph, the diagnosis would never have been correctly made.

Separation of the Lower Epiphysis of the Left Radius.

A boy of 11 years, seen in October, 1911, after injury to the wrist a short time before. Cause not ascertained. Examination showed slight but distinct swelling over the radius and ulna at the wrist. Abnormal mobility of extreme lower part of radius detected. A "doughy" crepitus, or springy feel, without actual grating. The X-ray showed well the separation of the epiphysis; fixation by posterior splint with perfect result.

Sub-Periosteal Fracture of the Lower End of the Radius.

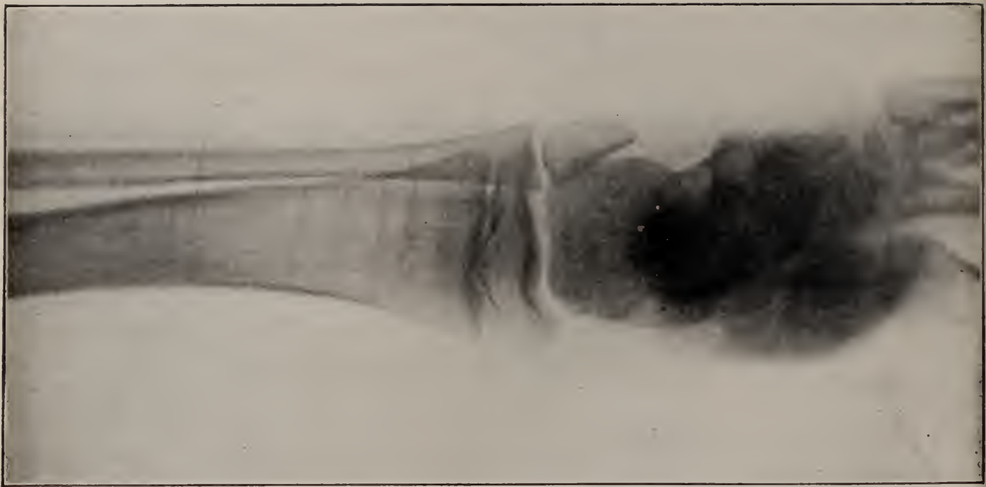
At a previous meeting of the Pediatric Society, I showed examples of this fracture. This case, one day old when seen, is a good example. A boy of ten, seen a few weeks ago after a fall on the arm presented some swelling over the lower end of the radius with extreme pain on rotation, but no crepitus. The X-ray showed well the transverse crack and bulging of the periostium at either side at the lower end of the radius. Fixation by posterior splint; perfect result.

Fracture of Third Metatarsal Bone in an Infant.

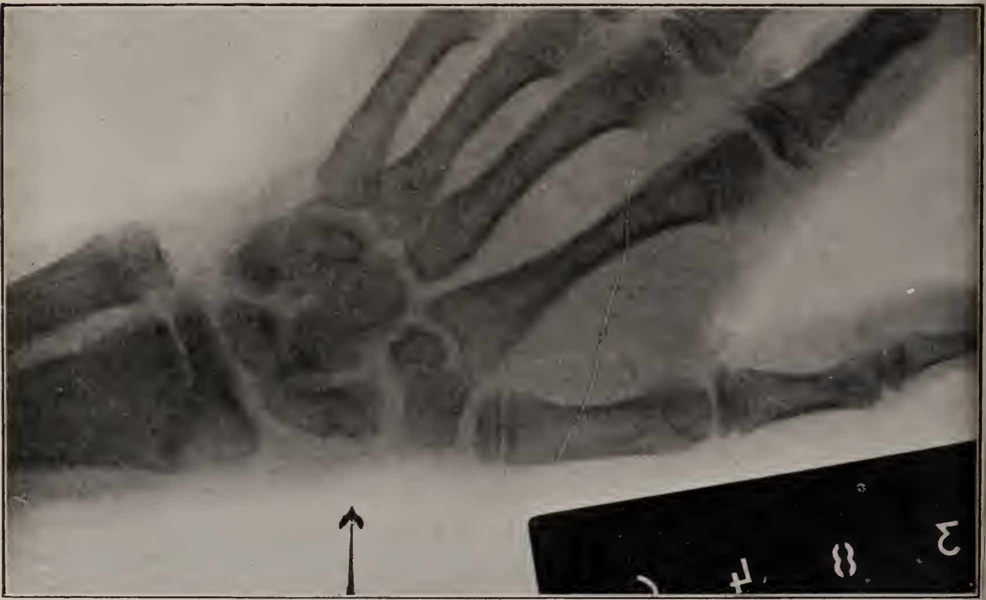
In my experience, this is a rare fracture in infancy. It is usually caused by a crushing blow with direct violence. An 18 months old infant was seen in the fall of 1911. There was a history of the child's falling part way from the bed. An older sister quickly took hold of the foot to try to prevent the child falling further. Examination showed considerable swelling of the foot as a whole, more marked on the dorsum. There was no ecchymosis, no abnormal mobility and no crepitus. The X-ray showed fracture of the third metatarsal near the base; without it, positive diagnosis would have been impossible. Plaster fixation for a short time gave a perfect result as would be expected.

Osteo-Myelitis of the Upper End of the Ulna.

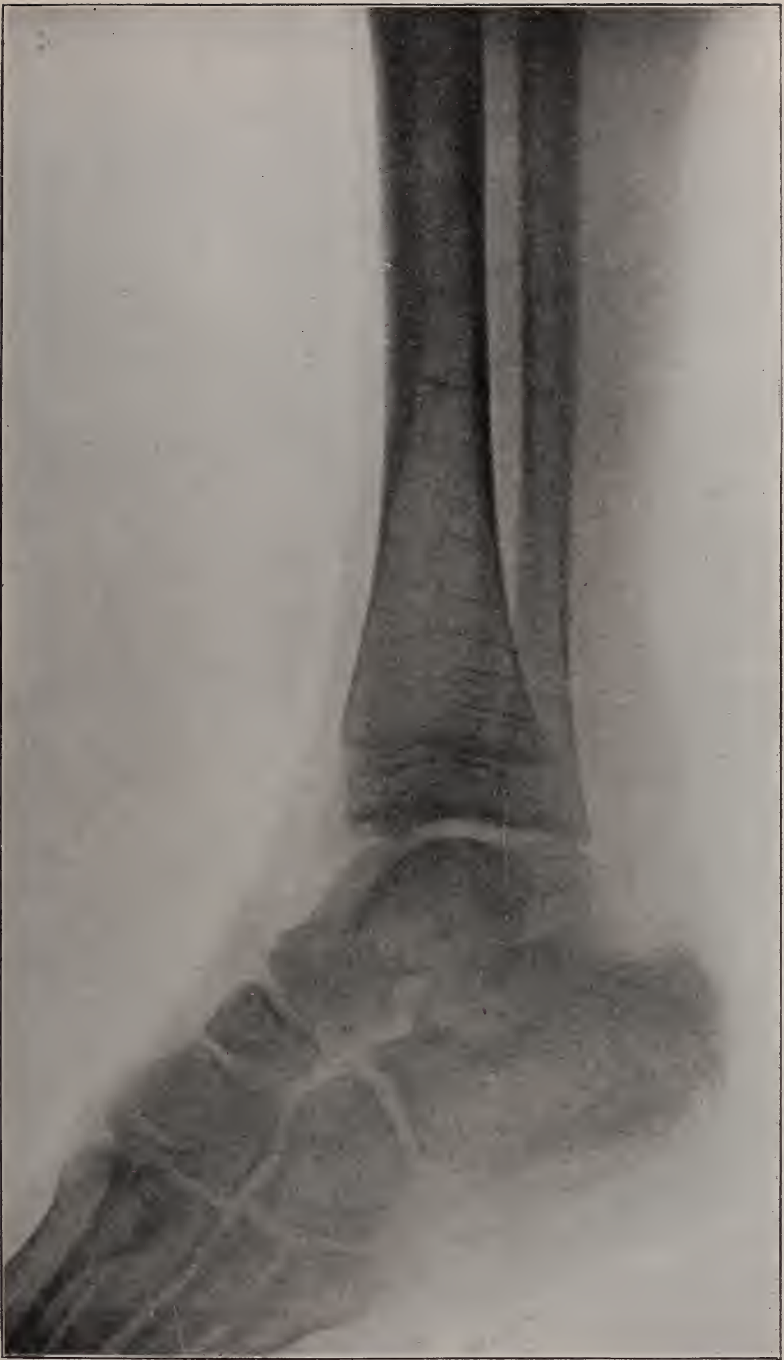
A previous healthy young Jewish girl, about 17 years of age, was suddenly seized with great pain in the region of the left elbow in September, 1911. There was fever and general disturbance. She was treated at home by a physician for some weeks, when the elbow swelling went down somewhat, the elbow was found to be perfectly stiff. Examination showed the left arm held flexed at 45 degrees, slight increase of circumference of elbow, and tenderness over the olecranon. The X-ray showed an osteo-myelitis, which without a previous history, one not experienced in interpreting radiographs might mistake for a fracture, with any history of traumatism previously.



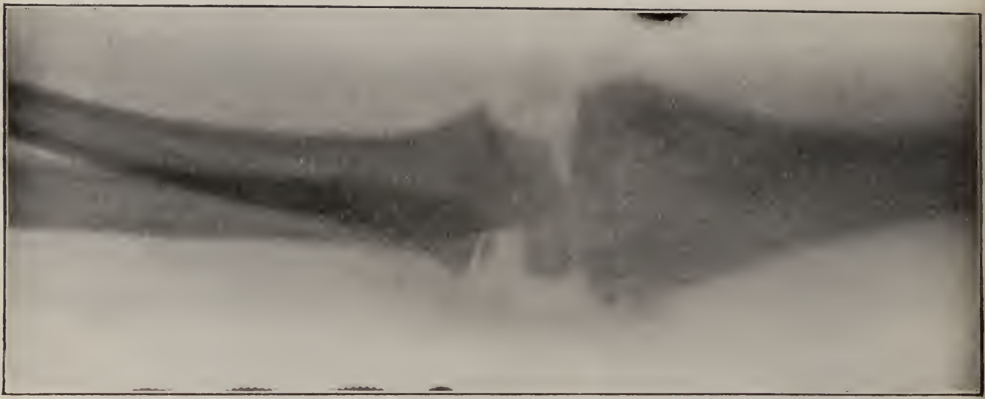
Fragilitas Ossium. Antero-posterior view. Note separation of lower Epiphysis of Fibula. Transverse striations of bone and bowing of Tibia



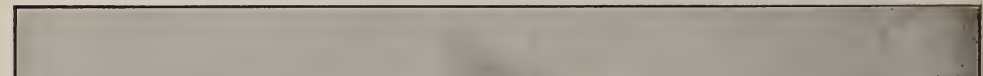
Fracture of the Carpal Scaphoid. Boy of 12. Note transverse crack in distal part of bone.



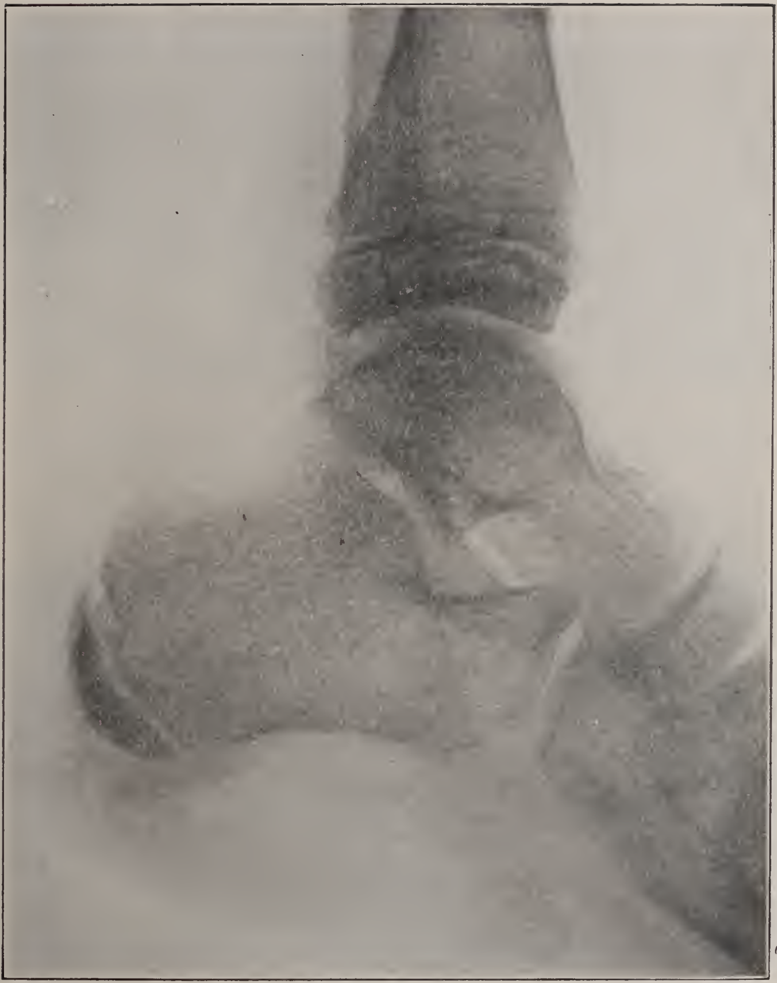
Fragilitas Ossium. Lateral View. Note transverse striations of tibia. Extreme porous condition of lower third. Old Fracture at lower third.



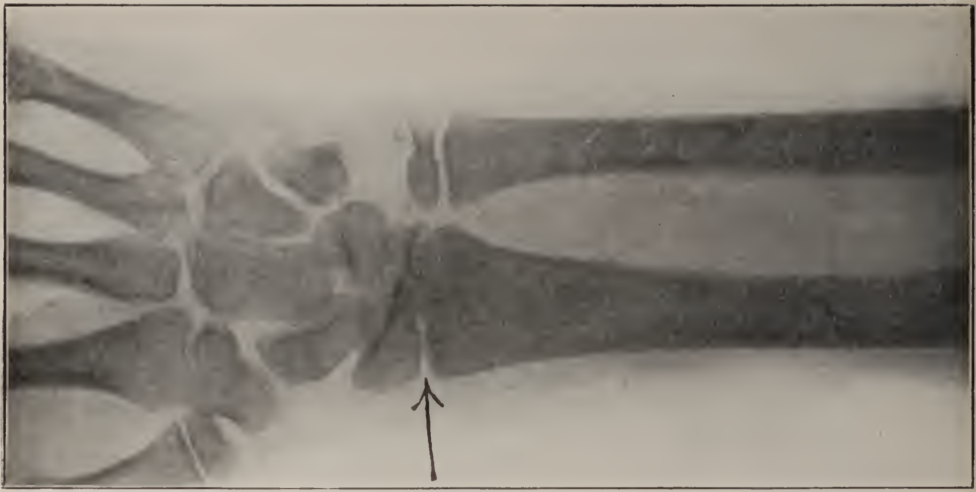
Diacondylar Fracture of the Humerus. Note crack running across condyles. Center for capitellum and radial head plainly seen. Boy of 6 years.



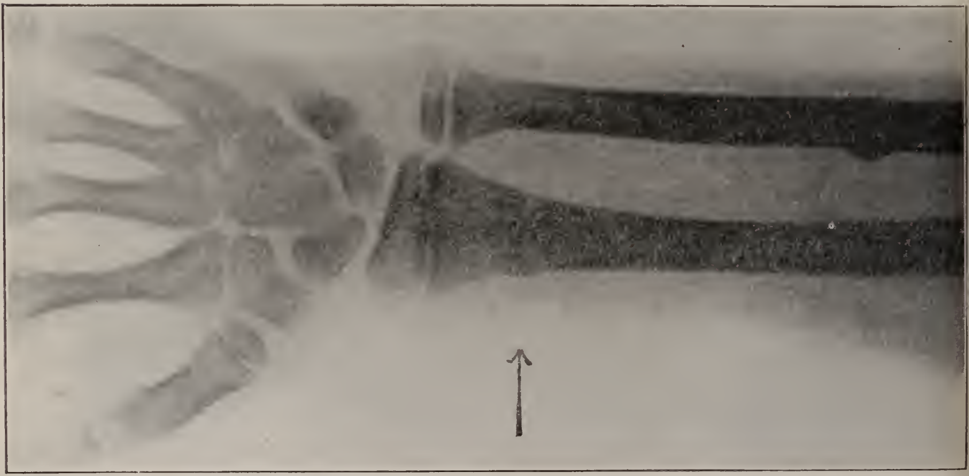
A bone cyst clinically mistaken for fracture. Note clean cut triangular cavity in head of third metacarpal bone. Without X-ray crack in bone would be diagnosis.



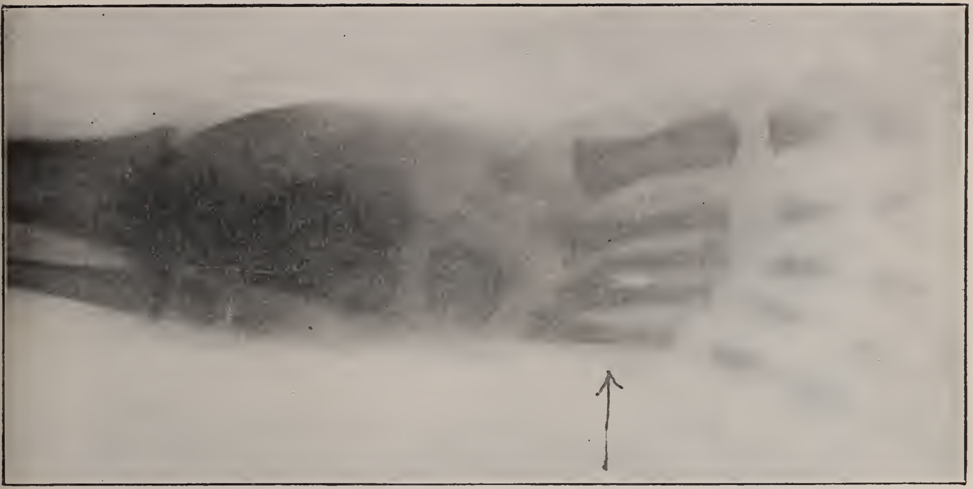
Separation of the Epiphysis of the Os Calcis. No displacement.



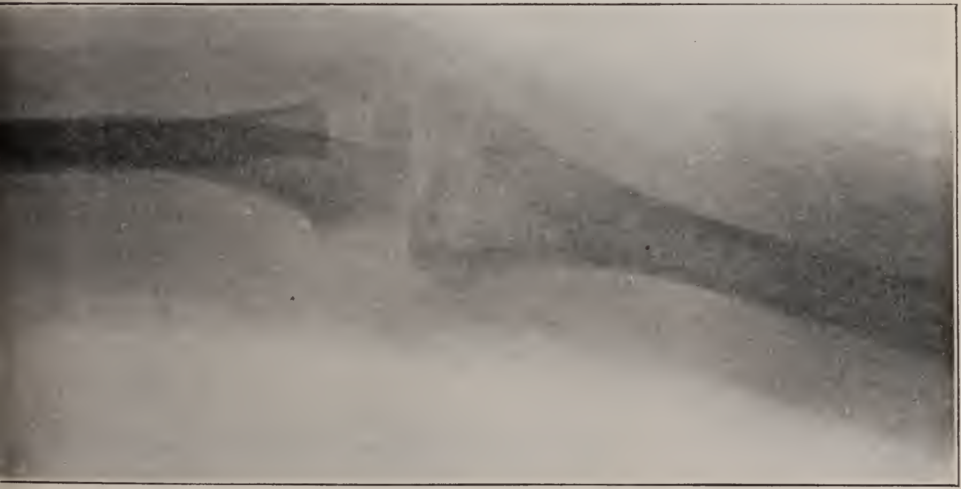
Separation of the lower Epiphysis of the left Radius. Note irregular outline and obliteration of space. Compare with ulna Epiphysis. Boy 11 years.



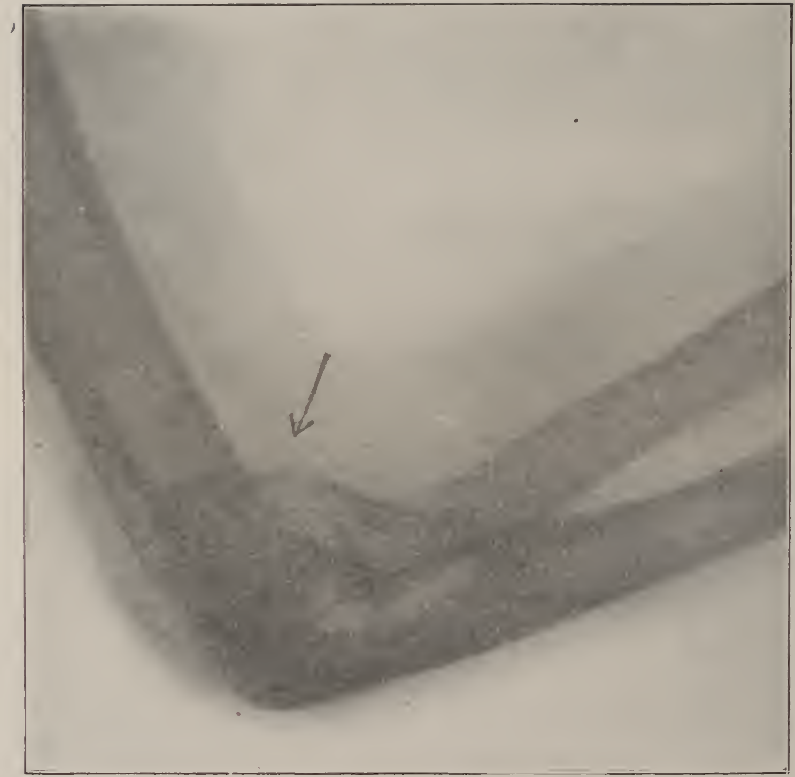
Sub-periosteal fracture of the lower end of the radius, one day old. Note bulging of periosteum and crack across bone.



Fracture of third Metatarsal bone in an Infant, near base. Without X-ray diagnosis impossible.



Separation of Lower Epiphysis of Humerus. Note Capitellum too low down and shadow above caused by she of bone torn off diaphysis. 18 months old infant.



Osteo Myelitis of Ulna. Girl 17. Note coronoid process. Looks at first like fracture.

FRACTURE:—DISLOCATION OF THE ELBOW.

BY

WM. PEARCE COUES, M. D.
Boston, Mass.

Much scientific, accurate and painstaking work has been done of late which has put our knowledge of acute traumatisms around the elbow joint in children on a sound basis. Much of the credit of this belongs to F. J. Cotton of Boston and A. P. C. Ashurst of Philadelphia. Owing to such work and the accurate knowledge of the epiphyseal lines about the elbow obtained by good radiographs, the treatment of fractures and epiphyseal separations in children has improved to a marked degree in hospital and dispensary clinics. It is unfortunate that the same cannot be said of the bulk of cases treated outside. If those who undertake to treat these cases in children would think of the lesions as mostly involving cartilage and to some extent rather soft bone, benefit to the patients would result.

It is discouraging to hear remarks like "If the elbow is fractured the swelling won't go down; if it goes down by tomorrow there is no fracture." It would seem almost superfluous to say that these lesions around the elbow in children need frequent inspection, but I have in mind a case, an elbow fracture in a little girl, put up in plaster at first and not taken down for three weeks, when much surprise was manifested at a sharp angular deformity, which has persisted, a source of trial to the patient. Plaster of paris fixataion is not good for elbow fractures in children.

It is wise to have in mind the centers of ossification about the elbow when treating these cases.

Ashurst.

"1. Capitellum of humerus appears in the first half year of life.

2. Head of radius during the sixth year.
3. Epitrochlea about six years of age.
4. Trochlear during the eleventh year.
5. Olecranon later in the eleventh year.
6. Epicondyle in the twelfth year.

The inner epicondyle joins the shaft at eighteen."

The capitellum trochlear and external epicondyle unite at sixteen and join the shaft at seventeen years.

Dislocations of the elbow and fractures of the clavicle are commonest in children and adolescent males. Backward dislocation is by far the commonest form of dislocation. According to Cotton, fracture within it of anything but the epicondyles, is rare, and most cases are open to doubt without good radiographs.

The reason why backward dislocation is so much more common than forward is succinctly stated thus by Piersol.

"1. The capsular ligament is weakest posteriorly.

2. The coronoid which resists backward displacements is smaller, less curved and received into a shallower fossa than the oleacranon which prevents luxation forward.

3. It is in its relation of least effectiveness when the joint is in full extension.

4. Falls upon the hand with the forearm extended greatly outnumber all other causes of dislocation of the elbow.

5. In full extension the already slight surface of contact between the radius and humerus is diminished and the posterior articular edge of the radial head projects behind the capitellum.

6. The ulna and radius are apt to be dislocated together rather than separately because of the strong ligaments which hold them to each other; the triangular ligaments below, the interosseous membrane and orbicular and oblique ligaments above; and because of the absence of any such intimate connection of either bone with the humerus."

"The bones are either forced backward with the elbow flexed, or are thrown out by leverage with the elbow in hyper-extension." —*Cotton*. According to him the epicondyles are most frequently fractured if a fracture accompanies the dislocation. Fracture of the external condyle is a rare complication and cases so reported often prove to be backward and outward dislocations, uncomplicated according to this author.

In the case to be reported, the diagnosis of fracture of the external condyle and backward dislocation of both bones of the forearm seemed perfectly plain. Unfortunately no radiograph could be obtained. It has been pointed out that in dislocation with fracture of either epicondyle, these are displaced with the forearm. In my cases there was a sliding crepitus over the external condyle, independent of radius and ulna, before and after the dislocation was reduced.

Raymond P., eight years old, was seen August 20th, 1909.

The history was that while playing a short time before in a carriage he fell from the wheel, striking with great force on the right forearm and elbow. There was immediately great pain, much swelling and total disability. Examination a short time after the injury showed the arm and forearm much swollen. A marked backward deformity was apparent though somewhat obscured by the swelling. Crepitus was present over the region of the external condyle. A diagnosis of backward dislocation of both bones with fracture of the external condyle was made.

Reduction of the dislocation was successful without ether, by direct pressure forward and downward on the ulna and radius, posterior to the humerus, with counterpressure above applied to the shaft of the humerus. After reduction fracture of the external condyle was more definitely settled. Fixation by internal angular splint and sling. There was a prompt disappearance of the swelling and union was quite firm when the boy was discharged to his own physician nine days later. Afterwards I was informed of a very good immediate result.

The only other injury which backward dislocation is liable to be mistaken for in children is supracondylar fracture of the humerus. The greater distance of the oleacranon posteriorly from the humeral shaft, lack of crepitus, and abnormal mobility just above the condyles. with a history of the fall and general look of the arm should afford no difficulties in differential diagnosis, even without a radiograph, to those accustomed to seeing those cases.

REMARKS ON ACUTE SCARLATINAL NEPHRITIS IN CHILDREN.

With Especial Reference to the Treatment of Uremia by Lumbar Puncture and Morphine and Atropine.

BY

HERMAN B. SHEFFIELD, M. D.

[New York

Contrary to what is frequently believed, scarlatinal nephritis does not set in suddenly without premonitory signs. As you watch the urine of the scarlatinal patient from day to day, you will usually find some indication of the approach of the kidney affection in the form of a reduced power of urinary excretion, the presence of blood-corpuscles and traces of albumin in the urine, retardation of the pulse, pallor and slight edema of the face and dorsi of the feet. Moreover, in hospital practice where opportunities are offered to weigh the child, we will often note that the patient instead of losing in weight gradually gains in weight owing to retention of fluids in the tissues. As time goes on the aforementioned symptoms multiply either gradually or, more frequently, rapidly, so that within two or three days the disease is in full bloom, The urine is almost entirely suppressed. If a specimen is obtained it is found to contain a large quantity of albumin (three per cent. or more), blood-corpuscles, epithelial, and blood casts and kidney cells. Even with the naked eye you can see that the urine is dark red or smoky in color and contains a heavy brown sediment. The retained urine rapidly permeates the tissues, the skin assumes a waxy pallor, pits on pressure with the finger and quite frequently the dropsy extends to the peritoneal, pleural and pericardial cavities. The pulse at first is usually retarded and full, showing great increase in the blood pressure, but very soon the heart undergoes marked dilatation which, if long continued, gives rise to a weak, rapid pulse, dyspnea and even cyanosis. Often very unexpectedly symptoms of uremia set in, that is—vomiting, severe headache, dizziness, disturbance of vision up to total amaurosis, convulsions and, in severe cases, coma. I vividly recall the following case in point. It concerned a girl nine years old. She suffered from a very mild attack of scarlatina three weeks before the uremia developed. The attack was very mild indeed; a slight sore throat, faint rash, and a little temperature and after treating the child for three days, the family physician was politely informed that his services on the case were no longer needed. The doctor argued in vain that scarlatina was a treacherous disease, subject to surprising complications. The mother having had previous experience with scarlet fever in her other children, assured the doctor that she knew fully well when a case of the kind was severe enough to require a physician's continued attention. The girl remained apparently well for another two weeks. One day the doctor was told through the telephone that the girl had a "spoiled stomach" from partaking of an excessive amount of mixed chocolates. The doctor at once realized the gravity of the situation and directed that a specimen of urine be sent to him for examination. This was done about five o'clock in the afternoon. While testing the urine, which showed an intense hemorrhagic affection of the kidneys, he was hastily summoned to find the patient in a grave state of uremia. She was suddenly seized with epileptiform convulsions which, with but brief interruptions, continued for eight hours, notwithstanding prolonged warm baths, the liberal use of bromids and chloral per rectum, and chloroform by inhalation. Before the convulsions set in she suddenly cried out that she was losing her sight and with that she also lost consciousness. After the convulsions to a great extent subsided, the patient kept on talking incoherently almost incessantly for five days. During this time also she had occasional convulsions, slept only ten or fifteen minutes at a time and only two or three hours in twenty-four, voided very minute quantities of urine a few times a day, refused nourishment, and was totally blind. I was called to see the patient in consultation the sixth day of the uremic attack—the third consultant on the case. I understood that the routine treatment of uremia had been given a full measure of opportunity. The child had been bathed and sweated, cupped and irrigated with practically no change for the better. It surely was a desperate case.

As I looked upon the child throwing herself in all directions of the bed, staring vaguely into distance and screaming and talking without sense or meaning, the picture appeared to me so similar to that of a slow meningitis, that it appealed to me best to treat it as such. I promptly resorted to lumbar puncture to relieve the increased intracranial pressure and withdrew three ounces of freely flowing cerebro-spinal fluid. Noting that the child continued to be restless I injected hypodermatically gr. 1-16 of morphine and gr. 1-500 of atropine. Hardly ten minutes passed by when the patient went into a profound sleep which lasted about eight hours. On awaking she was entirely free from the amaurosis, headache, convulsions and restlessness. She voided several ounces of urine and soon made a rapid and apparently perfect recovery. This experience occurred about seven years ago and I have since then had several occasions to apply the same treatment. On two occasions I tried to get along either without the lumbar puncture or without the morphine and atropine, but both times have failed to obtain the charming effect so rapidly manifested on the use of both therapeutic measures together. As these procedures carefully employed are entirely harmless, I hope it will receive due application in all cases of acute severe uremia in children as well as adults.

127 West 87th Street.

THE FOOD AND MEDICINAL VALUE OF WINE.*

BY

WILLIAM EDWARD FITCH, M. D.

New York City.

The American people are beginning, at last to recognize and appreciate the value of wine as a food and with food. The result is, they are using wine more and more as it should be used namely at the table with the daily meals. This is the proper way and the proper time to drink wine. Drinking between meals is a bad American habit which is responsible for a great deal of indigestion and intemperance. On the other hand, the fruit acids in wine, when taken with more solid food, aid and promote digestion.

It is an interesting fact that the food value of wine was well known thousands of years ago. As far back as we have any record, we find people using wines. Thus, in Old Testament days, the three great food staples were: Corn, Oil and Wine. Corn or maize furnished bread, oil the fatty substances, but wine as a beverage supplied those food elements not found in either corn or oil.

With the progress of civilization the use of wine became more general and widespread. Among the Greeks and Romans, wine was not regarded as a luxury, but as a necessity. This has continued down to the present time, so that today, wine is a necessary part of the daily food of millions of Europeans In some districts wine takes the place of meat; in other districts it is used instead of tea and coffee, which, as we all know, has little or no food value.

Wine plays an important part as a temperance agent. The wine drinking people of Europe are the most sober and temperate people in the world. All over France and Italy, where practically every man, woman and child drinks more or less wine every day, the use of strong liquors, which are responsible for drunkenness, is very small. It is a good sign, therefore, to find Americans learning to use wines with their meals, and this habit will make for temperance in this country, just as it does in Europe.

Although the food value of wine has been known for centuries, it is only of late years that the subject has been studied and investigated in a scientific manner. Curiously enough, the feeding of animals or stock was at first given more attention than the feeding of men.

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*In the preparation of this article I have drawn largely upon the writings of Edward H. Twight, A. M., M. B., Professor of Vitriculture, University of California, for which I desire to give due credit.

We all know, or think we know, what food is, and what the word "food" means. However, it may be asked, what is food? As most of us understand it, food is any substance which, taken into the body, is capable of sustaining or nourishing, or which aids in sustaining or nourishing the living body. The three classes of foods are: Gaseous, such as the air we breath; (2) liquid, such as water or wine, and (3) solids, such as flour.

A more technical or scientific definition of food is the one given by M. Hedon, as follows: "Food is any or all substances capable of contributing to the formation or repair of the organism or to the production of energy without exercising a hurtful action."

Alcohol in wine is a true food. Professor Rubner, of Munich, established by researches, which are now classic, that the origin of animal heat, so long considered as a vital property, results exclusively from the combustion of constituents of food. Thus, it has been proven that milk, fatty matters, and even starchy materials, such as potatoes, have a higher nutritive co-efficient than meat, whose power of energy has greatly been exaggerated. Chauveau and Grandleau showed the importance of sugar in feeding.

Two American scientists, Professors Atwater and Benedict, determined the physiologic action of alcohol in its relation to the production of energy. The rigorously exacted methods of these scientists make their results absolutely reliable. They establish the great truth: that the potential energy of alcohol is transformed in the body into energy as completely as other food. The amount of alcohol used daily in their experiments was about 75 grammes; that is, about the quantity contained in a bottle of wine. This amount was taken diluted at different times through the day. The alcohol was burned in the system as other carbohydrates, giving water and carbonic acid gas. Thus it was proved to work as a true food.

We must take under consideration the question of dilution of alcohol. Whereas it is without question that 100 ccs. of alcohol corresponding to a bottle of claret, and equivalent to half a pint of brandy, are beneficial when taken in the diluted form of wine through the day; there is no doubt that a half pint of brandy or whiskey taken undiluted would cause serious trouble of the organism. Absorbed in the proportion of one gramme per kilogramme of body weight, alcohol in the form of wine is a food just as sugar or starch is a food.

In the grape and wine districts of Europe, the workmen find in the wine they drink the source of energy that they could not get from their food. The use of wine is also indispensable among the workmen who labor in factories or where the heat is intense, as it is in the blast furnace, or in glass factories. Under such conditions, wine is more readily assimilated than would be the more complex foods that would replace it.

The great German chemist, Baron Von Liebig, many years ago found that alcohol in small quantities was a food similar to sugar and was burned in the system. He wrote: "It is rare that a well fed man should turn to alcohol, but when lack of work, or the small pay causes a workingman to be underfed; a craving for alcoholic drinks is the result."

Liebig made another very interesting statement, as follows: "Since the establishing of prohibitionist societies, many English families decided to stop the supply of beer that was given to house servants, allowing them an increase in pay corresponding to the economy in house expense. It was soon found, however, that the food bills increased largely, so that the 'beer money' was paid twice—once to the servants, and once in food."

In the *Revue Generales des Science*, for 1903, M. M. Rose and Hedon called attention to the experiments of veterinarian, M. Crouzel, who wrote an article on the value of wine as a cattle food. He advocated the use of spoiled wine as part of the ration for farm animals. He advised giving horses wine instead of oats, a working horse to receive about a gallon of wine a day. This was done at a time when there seemed to be a large excess of wine on the market. One quart of wine and one pound of bran fed at a meal instead of oats, and the horses kept up their work without any loss in weight or appearance. It has been also shown that dogs that receive wine as part of their food fatten quicker than those that do not. A difference as high as 15 per cent. was found in favor of the animals receiving wine.

Professor Duclaux, the successor of Pasteur and head of the great Pasteur Laboratory at Paris, asserts, as the result of his investigations, that wine is not only valuable through the alcohol it contains, but also on account of the other elements, such as glycerine, lecithin, tartaric acid, and other fixed and volatile acids which are valuable foods

At a congress of the Association for the Advancement of Science, held at Montauban, France, a few years ago, Dr. Mauriac presented an elaborate paper on the value of wine from a medical point of view. He concluded by saying: "Just as we have hydrotherapy or treatment of certain diseases by water, so we have winotherapy or the treatment of certain diseases by wine."

It is not generally known that wine is a powerful antiseptic. On this point we would refer to the experiments in 1893 of Dr. Pick, of the Institute of Hygiene, in Vienna, of Gruber and Robor, of the Sanitary Office, in Berlin, and more recently by Tavernari, of the Institute of Hygiene of Madena, Italy, in 1900.

Professor Pick showed that pure wine will kill the bacteria of cholera in five minutes, and that water containing these bacteria can be drunk safely if it was left five minutes in contact with one-third its volume of wine. The antiseptic action of wine has also been found to apply to the typhoid bacteria. In the *Annales de l'Institute Pasteur*, Sabazes and Mercadier established the following facts: Ordinary claret will kill the typhus bacteria in two hours when the wine is undiluted, and in four hours when diluted. A white wine will kill these bacteria in twenty minutes, and champagne in ten minutes. In other words, if casks or bottles had been washed with water that was contaminated, after being filled with wine for a few hours the germs would be killed. It is important to note diluting the wine does not destroy its antiseptic value. Mixing water that was contaminated with wine a few hours before drinking would purify it by destroying the disease germs that might be present. The value of wine during epidemics of cholera or typhus has been shown by the fact that those who used wine escaped, while the water drinkers were stricken with disease.

The effect of alcoholism on tuberculosis, and also the kind of alcoholism, are the subject of a recent report made by Dr. Grenier de Gardenal. This report, based on the examination of 200 cases of tuberculosis, showed that 57.5 per cent. of the patients were alcoholics, but only seven or 3.5 per cent. had used wine as an intoxicant. The others became alcoholics by using absinthe or strong liquors.

Wine is the fermented juice of the grape, one of Nature's finest fruits. The analysis of grape juice by two eminent chemists, Messrs. Henry and Chavallier, showed the close comparison between its constituents and those of woman's milk. Thus: they found the following elements in one hundred parts of each: Grape juice, 78 to 85 of water; 12.20 of sugar, etc.; 1.9 of mineral substances, and 17 of albuminous or nitrogenous matters.

Human milk, 85 to 87 of water; 11.0 of sugar, etc.; 0.4 of mineral substances, and 1.05 of albuminous or nitrogenous matters.

The principal difference between the unfermented grape juice and wine is that the grape sugar, during fermentation is changed into alcohol and carbonic acid. Give a bottle of wine to a chemist to analyze and what will he find? He will find in 100 parts of wine 85 to 87 of water; 10 to 11 of alcohol; 1.50 of mineral salts; 0.75 of free and other acids, and .05 of oils or starchy substances.

Thus, all the constituents of wine have a food value. The water is a food element, and so is the alcohol. The fruit acids such as tartaric, pectic, succinic and tannic, not only promote the flow of saliva and the gastric juices, but also aid in converting into sugar the starchy matters of the food, while the salts in wine go to nourish the bones and tendons of the body.

In the matter of eating and drinking, the American people have much to learn. Almost every physician will tell you that more people suffer from over-eating than from over-drinking. Let Americans once get in the habit of drinking good, pure wines at the table with their meals and they would soon become a most temperate people. We should always use wine with food, and in the same way as food, that is, temperately. In wine-growing countries of Europe, where millions of people—men, women and children—drink wine every day of their lives, no one thinks of drinking too much wine, any more than Americans would think of drinking too much coffee, simply because there is plenty of it.

The true temperance advocate, as well as the physiologist, therefore favors the proper use of light wine at the table and in the family. The more our people drink wine the better it will be for their health and temperance. The advice of the Apostle Paul to Timothy is just as good today as it was nineteen hundred years ago: "Use a little wine for thy stomach's sake and thine other infirmities."

In considering the influence of wine upon nutrition, and its effects upon the individual in various diseases, its constituents must be borne in mind. Champagne, having a low specific gravity—nearly that of water, is absorbed less readily than spirit, which is a favorable circumstance, as it spreads the absorption over a longer period, and renders such wine less dangerous than spirits. Dry champagne is absorbed without change; its bouquet and aroma stimulate taste and appetite and influence nutrition favorably; the aromatic constituents stimulate the glands of the abdomen and favor the manufacture of blood cells; the general constitution of wine has a restorative action on those exhausted by fatigue, mental labor, insufficient food, or long illness, and in various diseases, as anemia, atony of the digestive organs, general debility and low states of the system.

In the pernicious vomiting of pregnancy, in nausea following anesthesia, where the patient vomits for days, and in the debilitating nausea following or attendant upon the puerpural state, frapped champagne will often give comforting relief. Absolutely *dry* champagne, without added sugar, is highly recommended for invalids suffering from gout, rheumatism, indigestion, and other diseases where saccharine or highly alcoholic wines would be contra-indicated. Rheims is the champagne centre of France, where its manufacture is a specialty. The juice of grapes only is used, the skins being rejected because of the tanin and coloring matters contained in them which are not wanted. The must or liquor is stored in rock cellars, where it ferments and deposits lees, and is poured from one cask to another until it is clear and bright.

The products of different vineyards are blended after fermentation; the proportion of sugar is then ascertained, and any deficiency made up by the addition of sugar-candy, for a definite proportion of sugar is required to produce the future sparkle. It is now bottled and stored in a warmer atmosphere until the effervescing character begins to appear, after which it is transferred to cellars for three or four years longer to mature. During maturation a deposit is formed and the bottles are shaken every day and so placed that it settles upon the cork; when mature, the cork is withdrawn with the deposit upon it, liquor is now added and a fresh cork put in. VIN BRUT is the natural champagne, having no liquer added; it is the best dinner beverage, and assists appetite, and stimulates the circulation and assists the process of digestion. Good champange, such as Mumm's Extra Dry can be taken with impunity by gouty or rheumatic patients and is very servicable in cases of acute illness where there is a tendency to heart failure, in obstinate vomiting and convlaescence. It is a valuable remedy in fevers and other wasting diseases, where, by its oxidation it acts as a food, spares the destruction of the bodily tissues, reduces the temperature, stimulates the heart and circulation; a dry brown tongue, restlessness and a feeble, irregular pulse are the indications for its administration.

SOCIETY TRANSACTIONS

NEW YORK ACADEMY OF MEDICINE.

Section of Pediatrics.

Stated Meeting, Held December 14, 1911.

DR. WILLIAM SHANNON IN THE CHAIR.

A Case of Chondro-Dystrophy.—Dr. George Dow Scott presented this patient, a female child of about nineteen months. The child was born normally and there was no history of syphilis or alcoholism. Marked characteristics of the disease were present; the large overhanging head; the small tipped nose; the shortened long bones; the open fontanelle; cuffed skin of the legs; rachitis; feeble musculature with inability to stand, and marked kyphosis of the lower part of the spine. The thymus gland was enlarged. The case had been confounded with syphilis, rachitis, hydrocephalus and cretinism. Dr. Scott presented pictures of the bones on the screen which showed well the relationship of the epiphyses to the diaphyses, the thymus gland was also seen.

A Case of Chondro-Dystrophy.—Dr. L. E. LaFetra presented a baby four weeks old with marked deformity and dystrophy. X-ray plates were exhibited showing the shortened long bones and a peculiar bending of the tibia and for purposes of contrast, X-ray pictures of a normal baby three weeks of age. The shortening of the humerus, tibia and femure were especially marked and the medullary cavity of the long bones was wider than normal. A peculiar feature of this case was the presence of marked exophthalmus in both eyes.

Discussion.

Dr. Charles Herman said the two cases were very interesting and gave a complete picture of the condition. The exophthalmus was distinct in Dr. Le Fetra's case; this was a rare complication in this disease. The radiograph showed not only the curvature of the shaft and the enlargement of the epiphyses, but a distinct change in the articulation at the knee. Dr. Scott had suggested that in his patient the thymus was enlarged. This seemed peculiar in view of the fact that several authorities had advised thymus gland in these cases and there were two cases under such treatment at present at the Vanderbilt Clinic. He had tried the pituitary gland but without marked effect and thought that its use was less empirical than that of thymus extract.

Dr. Walter Lester Carr thought these patients were certainly not normal; they might be quick and alert, but they were not normal. Some were precocious, but their mental development was uneven and they were overdeveloped sexually.

Dr. George Dow Scott asked if these children's minds were really normal. He thought they were undeveloped mentally, and cited the court jesters as persons who were funny simply because they were abnormal mentally.

Dr. Ward B. Hoag said that the question of the differential diagnosis between chondro-dystrophy and cretinism had been raised. These two conditions had many physical points of resemblance but the difference in mentality should make the diagnosis fairly easy. In the positive cretin there was practically an absence of mentality, whereas in chondro-dystrophy the mentality was not affected to any marked degree, though the patient might be somewhat slow or backward.

Abdominal Cystic Tumor in a Girl Ten Years of Age.—Dr. Sara Welt-Kakels reported this case. The patient was brought to Mount Sinai Hospital in the latter part of October. There was nothing in the family history that seemed to have any bearing on the present trouble. While the patient had been born a little prematurely, the birth had been spontaneous. She had been breast fed. She had frequently suffered from bronchitis and had been kept out of school for four months because of a persistent cough and while out had gained eight pounds. Some eighteen months ago the mother had noticed that the child's abdomen was enlarged. She occasionally complained of slight pain in the right iliac region and was frequently nauseated after eating. She had obstinate constipation and frequent micturition. She was fairly well nourished and weighed 68 and one-half pounds. There was considerable enlargement of the lower abdomen, but no venous distention and the umbilicus was not protruding. The greatest circumference of the abdomen was 27 and three-quarter inches; the distance from the umbilicus to the symphysis was eight inches. On palpation a large, smooth tumor was felt; it was cystic, rather tense pressed against the anterior abdominal wall, extending from above the symphysis to about one and one-half inches above the umbilicus, and fluctuation was readily obtained. There was dulness over the entire surface of the tumor, which remained unchanged when the patient turned from side to side. The tumor was but slightly movable and did not seem to be connected with any of the abdominal viscera. Evacuation of the bladder did not seem to change the contour of the tumor. Inflation of the colon showed that it was situated at one side of the tumor. Examination of the blood, urine and feces of the patient did not show anything abnormal. The von Pirquet test was slighly positive. They had concluded that this was an ovarian cyst. For differential diagnosis they had to consider cystic tumors of the kidneys, liver, omentum, and mesentery, as well as parasitic cysts and also cysts having their origin in remnants of the ductus omphalo-entericus and such as originated in the retroperitoneal space from remnants of Muller's and Wolffian ducts.

Hirschsprung's Disease in a Boy of Seven Years.—Dr. Sara Welt-Kakels presented this patient. His father and mother were healthy. The mother had had four children. The third died when eight days old without ever having had a natural movement of the bowels according to the mother. He passed water only on the fourth day after birth and vomited meconium. There was nothing abnormal about the patient except that he had been constipated from birth. The first movement occurred on the third day after birth following the administration of glycerine enemata and laxative. At that time the abdomen appeared to be distended. The bowels moved only once in two or three days and the movements were small. During his second year the condition grew rather worse and the sphincter ani was stretched and a tube inserted through which large masses of feces were evacuated. He improved for a time and then became worse, his bowels moving only once in three or four days. After an attack of diphtheria at the age of four years he became weaker, not walking much but preferring to lie down and sleeping a great deal. At that time, June, 1907, he came under Dr.Kakels's observation. His weight was 29 and one-half pounds; his abdomen was distended, measuring 23 and one-half inches around the umbilicus. Examination with the proctoscope did not reveal anything very abnormal. In making a digital examination the finger fell into a large cavity above the ampulla. On strict diet, daily irrigations and occasional laxative the boy improved. He remained under her care for about six months and then she did not see him again until November, 1911. During the past few months the abdomen had become considerably enlarged and the constipation very obstinate. He was much emaciated and weighed only 44 and three-quarter pounds. The superficial lymp nodes, axillary and inguinal glands were enlarged. The thorax was short and the lower portion considerably broadened. The abdomen was much enlarged especially between the ensiform process of the sternum and the umbilicus. The superficial veins were distended and movements of the intestines were visible through the abdominal walls. There was present tympanitis but no tenderness and no resistance could be felt. The umbilicus did not protrude. The tonicity of the sphincter ani was somewhat increased, but Foges' proctoscope could be introduced without diffculty; it led into a large cavity at the upper end of which small fecal masses could be seen. Blood, urine and feces showed nothing abnormal. The shadowgraph taken in the prone position showed an intestinal sac of enormous dimensions. This was an instance of Hirschsprung's disease. Danziger had collected 110 cases from the literature in 1907, including his own son, an infant three weeks of age. Hirschsprung assumed that there was a congenital dilatation and hypertrophy of the colon, a partial gigantism. Mya and Genersich believed that there was only a congenital dilatation of the gut and that the hypertrophy was congenital, caused by the stagnation of the contents in the dilated gut. Others believed that the condition was due only to the abnormal length of the gut and the multiplicity of flexures which led through stagnation of the contents to dilatation and hypertrophy. Merfau held that a functional stenosis might result from an anomalous position of the sigmoid flexure in its relation either to the colon descendens, or to the rectum, which again might be responsible for the stagnation of the contents. In a smaller number of cases volvulus of the sigmoid flexure, anomalous valves, etc., were found forming a mechanical impediment. The prognosis was not favorable although occasionally patients lived to an advanced age. Death occurred more frequently from colitis, ulcerations, and perforative peritonitis than from complete obstruction of the bowel. The most urgent indication was the removal of the accumulated feces. In Concetti's case about ten kilos of feces were removed by high irrigations. Permanent drainage, massage and electricity applied to the intestinal walls together with proper dietetic measures were employed in the treatment of these cases.

The outlook for recovery was better when surgical treatment was resorted to. According to Danziger's statistics of 35 cases operated upon, 21 or 60 per cent were cured, while of 59 cases not operated upon 44 or 74.6 per cent. died.

Acute Glandular Fever in Children.—Dr. Sidney V. Haas related the history of this disease and said that there was still much discussion as to whether such a condition existed sui generis, or whether it represented a state of glandular enlargement secondary to infection of the naso-pharynx and mouth, or perhaps an atypical or abortive form of some disease having glandular enlargement as an accompanying symptom. The chief argument of those opposed to considering this disease as a clinical entity was that the symptocomplex was only a manifestation of glandular enlargement due to a regional infection. Although this might be true the reaction of the glandular system to such an infection was so distinct and characteristic that there was as much justification for speaking of glandular fever as there was for speaking of scarlet fever, measles, etc., which were only the skin manifestations of mucous membrane infections and of the same area as that involved in glandular fever. The symptoms characterizing glandular fever and refusing to fit into any other disease were fever and malaise, acute swelling and tenderness of the glands of the neck, accompanied by a lesser involvement of the entire glandular system. The disease occurred in sporadic and in epidemic form, the latter seemingly the more common. Park West has described the largest epidemic where 96 cases occurred in 46 families in a period of a little over three years. Many smaller epidemics had been reported. In New York City in the spring of 1911, there had been an extensive epidemic. Dr. Haas said that in his private practice from February 20 to June 2, he had twelve cases in ten families, and had seen many others at the Vanderbilt Clinic and Lebanon Hospital. A study of the previous history of these cases developed the interesting fact that symptoms of the exudative diathesis existed in every instance and upon further investigation this might prove to be a predisposing factor. That the condition was contagious would appear from the reports of epidemics and from the fact that when the disease entered a household where there were other children, one or more usually became affected. The disease was one of early childhood and seemed to have no predilection for sex or social condition. The overwhelming number of cases occurred before the age of ten years and most of these before the age of five. Most cases occurred during the spring months.

The pathology of glandular fever was still obscure, though it seemed to point to the possibility of streptococcus infection at least as a cause of complications. Cultures taken from the throats of patients suffering from this affection showed as might be expected streptococci, staphylococci, pneumococci and influenza bacilli. Dr. Haas recalled instances that had been reported where the streptococci were found in pure culture in the cervical, axillary glands, in the liver, spleen, kidneys and medulla of bones and heart blood. The glands showed acute parenchymatous hyperplasia with largely dilated blood vessels. Morsakoff found streptococci in the urine in three out of five cases complicated by nephritis. According to Park West the incubation period of glandular fever was about seven days. The invasion though usually sudden might be preceded by slight fever and malaise for a day or two. The disease was characterized by a variable degree of prostration, pain in the limbs, headache, considerable irritability, moderately rapid pulse, pain in the throat and often in the abdomen and occasionally vomiting. There was usually a slight coryza, slightly congested pharynx, a temperature of from 102 to 105, pulse from 100 to 140 and respiration in normal ration to temperature and pulse. At the angle of the jaw an enlarged and exceedingly tender gland would be found, which even in the early stages of the disease would cause the patient to hold the head in the position of torticollis. Swallowing caused pain. In typical cases in from twelve to twenty-four hours the gland at the angle of the jaw became masked by a large mass, extremely tender and varying in size from a pigeon's egg to a goose's egg just beneath and posterior to the upper end of the sterno-mastoid muscle. The glands along the posterior cervical, the supraclavicular, the submental, submaxillary and the parotids were enlarged as well as the fine net work of glands that covered the entire lateral and posterior aspects of the neck. The axillary, epitrochlea, inguinal and mesenteric glands were also frequently affected. The glandular swelling was bilateral although not necessarily symchronous. In some cases the liver and spleen became palpable after a few days, but not regularly.

The disease followed one of two courses as a rule. The fever and prostration might disappear in from one to three days and the glands gradually diminish in size; or after one or two days of moderate fever and malaise, there might be sudden rise of temperature to 104 or 105 and soon after the glands enlarged until they assumed the size of a goose egg or smaller. After four or five days the attack subsided, the glands receeding slowly. It was possible to have the same group of glands swell and subside several times in succession over a period of several weeks. The prognosis was good although fatal cases had been reported. The entire absence of other physical signs and the quick changes in the size and the number of glands affected, the unusual localization and extreme tenderness and the absence of blood changes characteristic of diseases having unusual glandular enlargement for symptoms, should make the diagnosis of glandular fever.

This condition had to be differentiated from tuberculous and syphilitic adenitis, from Hodgkin's disease, from leukemia, from parotiditis and from calculi in the salivary ducts. When the condition became intermittent and prolonged it had to be differentiated from pyelitis and malaria. When abdominal pain and tenderness was marked it had to be differentiated from appendicitis or other intra-abdominal disturbances. Nephritis which cleared up after the disease had run its course might be a complication or systolic mitral murmur which appeared to be of hemic character and regularly disappeared after recovery. Suppuration of the glands occurred but rarely. A failure to recognize this condition might lead to a false and grave prognosis and hence this disease was entitled to a place in the text-books on pediatrics which at present failed to mention it, and a fuller consideration in those that did.

Discussion.

Dr. Charles Herman said that as long as the specific organism causing glandular fever was unknown they were groping more or less in the dark. While streptococci were frequently present they were probably secondary invaders. One would naturally suppose the naso-pharynx to be the portal of entry, but this was by no means certain. The point of attack was frequently at some distance from the point of entrance of the infectious material;

acute poliomyelitis was a striking example of this. It seemed likely that the virus of acute glandular fever had an affinity for the cervical lymph nodes, just as the virus of mumps has for the parotid glands. They had numerous examples of such selectine action. Dr. Herman did not think there was any relation between glandular fever and mumps; the incubation period was much longer in the latter and the age incidence was different. Mumps practically occurred in children under one year of age. The cases reported emphasized the close relation between the exudative and the lymphatic diathesis.

Diagnosis and Treatment of Vomiting in Infants by Means of a Simple Duodenal Catheter.—Dr. Alfred Fabian Hess read this paper in which he stated that it was possible without difficulty to pass a soft rubber catheter (Nelaton No. 15 F.), past the pyloric sphincter and into the duodenum. The catheter was introduced in the same way as the stomach tube and after a little experience, the technique became almost as simple. The catheter differed from the duodenal tube previously described by the author mainly in that it did not depend upon gravity or peristalsis to direct it to the pylorus. The mere force of inserting it propelled it along the natural course of the food to the pyloric opening; this enabled it to be introduced readily and gave it the additional advantage of a probe, by which they might test the tonicity and irritability of the sphincter. Radiographs showed that the catheter upon entering the stomach invariably bent sharply to the left to reach the fundus. It was probable that unknowingly others had entered the duodenum in this way, and in many instances reports as to the contents and capacity of the stomachs of infants had been subjected to this source of error. By means of the catheter they could readily diagnose pyloro-spasm. In the case of spasm they met with a persistent resistance at the same point whenever they attempted to advance the catheter; this was frequently accompanied by sensitiveness of the pylorus. The spasm might be felt to relax suddenly and enable the catheter to enter the duodenum. Marked pyloric stenosis could be diagnosed from failure to transgress the pylorus after repeated attempts. A mild degree of stenosis could not be differentiated from simple spasm. Cardiospasm frequently accompanied pyloro-spasm, but this sign was frequently overlooked as a result of too forcible insertion of the stomach tube. With a soft rubber tube it might be found impossible to enter the stomach. Frequently as a result of cardio-spasm the food did not enter the stomach, being checked at the cardia. Just as marked gastric secretion frequently accompanied pyloro-spasm so also did increased duodenal secretion. This secretion contained protease, lipase and amylase to a marked degree, so that in this connection they might speak of a pancreatic hyper-secretion. The catheter was of value in the therapy of pyloro-spasm; its passage through the pylorus seemed to relax the ring and thus diminish the vomiting. It would seem of advantage to test this method of dilating the pylorus and to pass the catheter frequently in such cases. Another form of therapy consisted of duodenal feeding, which was shown to be feasible by radiographs. It should be retained for such cases as did not retain food given by gavage; the food should be given slowly and in not too large amounts. It had been found to be of great value in cases of this kind.

Why Our Obstetricians Should Either Extend Their Line Of Endeavor or Confer Earlier With Pediatrists.—Dr. Ward Bryant Hoag spoke of the extensive awakening to the need of correcting conditions responsible for the high infant mortality. That such efforts were necessary was shown by the high infant mortality, 20 per cent. of all children born, dying before they reached the age of one year. While the majority of infant deaths were among the poor all classes showed an needlessly high mortality. A little discreet advice at the time the baby was born and a little "follow up" work were better than a great deal of endeavor after the baby had been allowed to develop 14 nutritional disturbances. They had no specialty in work among children which applied to what might be called "prophylactic work" or simply "care of children" and both the obstetrician and the general practitioner neglected to give that special advice which was needed at the time of the baby's birth. The writer had presented the facts to the occupant of the Chair of Greek of

Columbia University who had suggested the word "Paedotrophy" which meant "care of children" as the appropriate term to designate this line of work. In their work among children the greatest possibilities lay along protective and preventive lines. Such a specialty would be a broad and comprehensive one, and the time was ripe for the schools and specialists to extend their usefulness by recognizing the prophylactic specialty of childhood work, paedotrophy. Forty-three per cent. of all births in New York were attended by midwives, and though there were no reliable statistics the death rate among these infants was unquestionably high. The law which permitted these ignorant women to take charge of mothers and their infants at the most critical period in the lives of both. Gastro-intestinal diseases killed from 60 to 75 per cent. of the infants that died during the summer, and from one-third to one-half of each year's victims died before the third month of their existence. These early deaths were nearly all ascribed to nutritional diseases. The indisputable inference from these facts and figures was that there was some radical defect or neglect on the part of those who should early advise for the child's nutritional welfare. The babies were placed at a disadvantage from the very beginning. Many of the best obstetricians in this city, and they had no superior the world over, had admitted to him that they took little interest in the details influencing the baby's nutrition. This failure was emphasized by the fact that most of the large lying-in institutions had no one on the attending staff who gave special thought to infant feeding or questions pertaining to infants in general. As a remedy for this condition in institutional work, that of the Free Out-Door Maternity Clinic, conducted by Dr. Hill and Dr. Herman Schwarz might be considered a model. They instructed the mothers before they left the institution and then followed them up afterward. Of 774 children born under their charge from November, 1908, to November, 1909, 38 died. There were 105 born under their care that passed from their attention before the expiration of the year; this made the mortality well under six per cent., a very marked contrast to the mortality generally reported throughout the city. This was among the very poor. A record of 117 cases in private practice from 1905 to 1909 showed that only two babies died or less than two per cent. There should be pedotrophists in all lying-in institutions who should assume to advise from birth on all questions concerning the baby. When the condition of the mother was favorable she should be instructed in a series of talks on the fundamentals of the care of her baby. This teaching should be emphasized in a practical way by the nurse; then when she left the institution there would be a well trained baby and a mother with some definite idea of her responsibility as a mother, a mother who knew what she was expected to do and how to do it. The mother thus taken into the confidence of the physician was not likely to accept the advice of any old woman who happened in, but would respect only such advice as came from a physician. Among the very poor the follow up nurse was indispensable; she was valuable not only to the baby but to the economics of the entire household. In private practice certainly no less advice should be given mothers than was given those cared for in institutions. If the surgeon did not care to properly instruct the mother he should have an associate who should look after this part of the work.

Discussion.

Dr. George L. Broadhead said he thought the paper was valuable and deserving of consideration but that Dr. Hoag had been a little too severe in his arraignment of the obstetrician and the general practitioner. He did not think that as a class they paid so little attention to the details of nutrition and the development of the children under their care. Many years ago the duty of the obstetrician ceased when he handed the baby to the nurse, but that time has long passed. The baby should by all means be given due consideration; the child was deserving of at least as much attention and consideration as the mother. Dr. H. L. Hill and Dr. Herman Schwarz had certainly obtained excellent results in their work in the Free Out-Door Clinic when they had a mortality of less than six per cent. Every mother should be instructed to bring her baby to the dispensary connected with the institution in which she was confined. There were excellent dispensaries for children connected with most of the large lying-in institutions where specialists were willing to instruct the mothers. The child did not come into the world of its own volition and should have the best care possible on the part of both mother and physician. With all the facilities and clinics here in New York Dr. Broadhead could not see why babies should not be properly treated.

Dr. Floyd M. Crandall said that the paper was interesting to him because it was in the line of preventive medicine; certainly advances had been made in that direction. It seemed to him that there were three classes of persons who had charge of babies from the time of birth. The first was the obstetric specialist; in this class there had been a great improvement in the last twenty years. They certainly used to pay very little attention to the babies. The second class might improve much; these were the general practitioners who had large obstetric practices and did not give much time to pediatrics and they were certainly a difficult class with which to deal. They were the worst kind of baby-weaners and usually told the mothers to buy a certain kind of baby food and to use it according to directions. The third class consisted of the midwives. Much could be accomplished by following the babies up when the birth report went in, as was being done now, but too often the birth return did not go in until a week or more after the birth occurred. Much of the damage was done during this first week.

Dr. George Dow Scott said that in his work in this line in New York and Boston he had been impressed with the fact that the mother's breasts were too often neglected. More attention should be paid to this point and also to the diet of the nursing mother; this would make the milk better, permit nursing with less discomfort and lessen the desire of the mother to wean her child.

Dr. William Shannon agreed with Dr. Broadhead as to the progress that had been made in obstetrics and also with Dr. Scott in regard to the care that should be given the breasts of the mother before the baby was born. Some institutions were very negligent in caring for the babies and he believed that in some instances the obstetrician was responsible for this. The nurse as a rule directed the feeding according to text-books written by good men but they often misled the nurse and the mother. These books did much harm especially in cases of difficult feeding.

Dr Charles Herman thought that Dr. Broadhead was speaking from a theoretical standpoint when he advised them to tell the mothers to come back to the dispensaries. It was not sufficient to open a milk station and to tell the mothers to come; there was great difficulty in getting them to return regularly and on this account the visiting nurse was indispensable.

Dr. Ward B. Hoag, in closing the discussion, said he did not wish to stricture any one class of men, that he wished his remarks to be considered as one more effort to be added to the many already devised to lower the infant mortality. Many eminent obstetricians had admitted that they took little thought about the intricate problems connected with the nutrition of the infant and as a result the lives of many babies were placed in jeopardy before they reached the hands of the specialist in children's diseases. The large mortality during the third week showed that there was something readically wrong with the advice given regarding the care of the baby during the first week. Too many bottle fed babies came from the lying-in institutions and the instructions concerning the contents of the bottle were such that it was evident that sufficient thought had not been given the subject.

RETROSPECT OF CURRENT PEDIATRIC LITERATURE.

Infectious Diseases

Under the Charge of

ST. GEO. T. GRINNAN, M. D.

Chief of Clinic in Practice of Medicine, Medical College of Virginia; Visiting Pediatrist, Memorial Hospital, Richmond, Va.

Treatment of Normal Whooping-Cough.—Nobecourt, (*Paris Med.*), describes some of the remedies not usually known for this disease. Weill and Martin found good results from the inhalation of quinoleine, a substance extracted from coal-tar or prepared synthetically. Ten to thirty drops are added to 100 c.cm. of boiling water and inhaled three or four times a day up to twenty minutes. Internally a saturated solution of fluoroform is well spoken of by Tissier. Two gr. of eight per cent. fluoroform is given three times a day in the following doses: Up to one year, 10 to 15 drops; from one to three years, 15 to 20 drops; over three years, 20 to 30 drops, and in addition after each attack of coughing as many drops as months or years of the child's age: 60 to 80 drops can be given per diem in the newly-born up to 150 to one year and to 20 grm. to children over three. Anti-diphtheritic serum, or 0.10 gr. of anti-tetanic serum, have also proved efficacious. He devotes the remainder of the article to a consideration of the usually employed remedies and sums up the treatment as follows: Inhalations of water medicated with various substances, as quinoleine, etc., internally, belladonna, quinine, or antipyrin in increasing doses. If the fits of coughing are violent, inhalations of oxygen, chloroform or ether during the attacks, and if very severe, morphia injections or chloral. Hygienic measures are essential.

Circulatory Failure in the Acute Infections of Children.—The result of a series of observations in the wards of Bellevue on the effects of drugs on blood pressure in pneumonia in children is described in an article in the *Boston Medical and Surgical Journal*, May 12, 1910. The work was done by Drs. Howland and Hoobler. They used caffein, camphor and adrenalin intramuscularly. All of these raised the blood pressure, but adrenalin was more prompt than any of them, and the effect was evanescent, less than half an hour. In some instances the fall was below the point registered when the drug was begun.

Caffein preparations were uncertain, but with a good preparation better results were obtained. The increase in pressure began in five minutes and reached its maximum in half an hour and was manifest for two hours. Camphor was not so certain or so prolonged as caffein. Dr. Howland says that cold air raised the blood pressure more certainly, more constantly and more satisfactorily than any drug.

The difference between the out of door and in door blood was 10 or 15 mm. of mercury. This difference always occurred and was a constant difference. The lower the pressure the greater the change and the sicker children responded better.

The stimulating effect of cold is a much greater factor than the oxygen, and is shown by the fact that these cases do much better in winter than summer. Cold air is a most important tonic to the vasomotor apparatus, its effect is certain, constant and soothing.

Animal experimentation and acute observations are in accord regarding the cause of acute infections as causing a failure and final collapse of the vasomotor system. From the present available knowledge it is evident that continuous use of cold air, combined with the use of caffein and camphor reinforced by digitalis, infusions of salt solution and not too frequent use of adrenalin, is the best method of treating this dangerous condition.

Practical Points in the Diagnosis and Treatment of Diphtheria.—Levinson (in *Med. Rec.*), insists that not enough care is exercised by physicians in taking cultures from sore throats. He advises that a culture be taken from every sore throat, no matter whether a membrane is present or not, because, after all, the finding of Klebs-Loeffler bacillus is the only positive diagnostic point of diphtheria. Four precautions should be observed: 1. The swab and tongue depressor should be perfectly sterile; 2, the swab should be rubbed over the membranes, in the nose, the tonsils, the fauces, or the uvula, and, if no membrane is present, it is best to rub the swab over the tonsils or between the tonsils and the anterior pillars, or if nasal diphtheria is suspected, the swab should be carried backward to the nasopharynx; 3, no antiseptic or caustic should be applied to the tonsil at least an hour before the culture is taken, as it will cover up the bacilli and give a negative culture; 4, the culture medium should be inspected before using, for if it is dry, no growth will take place, and if its surface is rough or drawn over with a film (as happens when a growth of another bacterium has already taken place), the culture will be contaminated. The culture requires at least eight hours of incubation, but when possible, wait about twelve hours. If no incubator is at hand, use the vest pocket as such. Beside the laboratory diagnosis there are several clinical points: 1, odor: very characteristic, like that of feces, extends at least two feet from the patient, most pronounced in nasal, less in tonsillar, but present in all; 2, temperature: any sore throat with a temperature higher than 101.5 degrees F. is probably one of tonsilitis. No case of diphtheria has a temperature above 101.5 degrees F. A very severe case, especially if nasal, shows hardly any rise in temperature, most nasal cases having but 99 degrees F. The administration of anti-toxine may raise the temperature to about 102 degrees F. or more, but this disappears in a few hours. The average temperature in diphtheria is as follows: Tonsillar, 101 degrees F.; pharyngeal, 101.5 degrees F.; nasal and laryngeal, 99 degrees F.; 3, membrane; though not positive, the presence of a membrane can be taken as one of the best clinical diagnostic points; the absence of membrane does not exclude diphtheria, but the presence speaks for it; 4, retraction of epigastrium; if present the case is almost certainly one of laryngeal diphtheria, and anti-toxine should be administered immediately; very often a laryngeal diphtheria is mistaken for pneumonia and death results from a failure to intubate; 5, nasal discharge; all nasal discharges in children should be suspected as due to diphtheria. A culture in all these cases is desirable. As to doses of anti-toxine, Levinson lays down the following rules: 1, as prophylactic, not less than 5,000 units; 2, curative doses in tonsillar diphtheria, not less than 10,000 units; 3, curative doses in nasal and laryngeal cases, not less than 25,000 units. Never fear giving too much anti-toxine. If the heart does not degenerate as a result of the diphtheria toxine the anti-toxine will do it no harm. Cases receiving 85,000 units, and recovering without any bad effects on the heart, are on record.—*N. Y. Medical Journal.*

Diseases of the Skin and Uro-Genital System

Under the Charge of

EBERHARD WILLIAM DITTRICH, M. D.

Instructor of Diseases of the Skin, New York Post Graduate School and Hospital. Dermatologist, German Odd Fellows' Home and Orphan Asylum; Dermatologist Northwestern Dispensary; Ass't Surgeon, New York German Hospital Dispensary, Urology.

Some Samples of Extragenital Syphilis.—Dr. J. W. Marchildon, St. Louis, Mo., (*The Journal of the Missouri State Medical Association*, October, 1911). The author reports 15 cases of extragenital syphilis, which have been under his personal observation. [The experience of the author concurs with my own in so far as he comes to the conclusion that the history given by these patients cannot be relied upon.—E. W. D.]

In all his patients the attempt was made to trace the source of infection, *but in no instance was the history of any value in making a diagnosis.* As the manner of extragenital infection is so varied and infection may be produced in so many ways, no attention need be given to the history from a diagnostic side.

For the diagnosis of specific infections of the body where the question of a primary syphilitic lesion comes up, the use of the dark stage apparatus to search for the *Spirocheta Pallida* and the Wassermann reaction are of the greatest value. As in syphilitic lesions having their location about the face other spirochetae may be met with, they ought to be distinguished from the various mouth spirochetae. Of diagnostic value is the fact, that the *Spirocheta Pallida* has a large number of even, stiff, cork-screw shaped spirals and that these spirals and this stiffness persists, even when the organism is quite under the dark stage, or when killed in stained preparations. The smaller number of gyrations, their uneveness and their straightening out under the latter conditions are characteristic of the others. In the greater number of these patients the chancre was located on the lip, and such lesions, when small, are apt to be confused with other conditions. All suspicious cases should be observed until a diagnosis is made clinically and confirmed by laboratory findings. Oftentimes clinically·the course of syphilis is very atypical.

One cannot always and in fact should never wait for the appearance of a secondary eruption to make the diagnosis of syphilis.

Secondaries mean a further and greater infection of the system. Very frequently mild secondaries are overlooked, or they may not develop, and secondary eruptions especially in a healthy robust individual, may disappear leaving no pigmentation. Waiting for clinical signs such as secondaries may be in vain and may be allowed only in conjunction with the careful study of material from the supposed chancre in connection with frequent serum tests. [The peculiar inflammatory condition and the character of the glands which communicate directly with the focus of infection are in my opinion also a valuable aid in diagnosis.—E. W. D.]

The Roentgen Ray Treatment of Goiter.—Dr. J. N. Scott, Kansas City Mo., (*The Journal of the Missouri State Medical Association*, October, 1911). Several years ago fairly good results in some cases of goiter were reported by treatment with the X-rays. At that time there was no distinction made between the different causes of enlargement of the thyroid gland. Later a larger number of failures were reported when treated by the X-rays. Since that time we have learned to treat only certain forms of enlargement with the X-ray.

The X-ray will not destroy that part of the enlargement which is due to fibrous tissue or calcáreous deposits. The X-ray is indicated in those cases in which there is an increased glandular activity resulting in an oversecretion from the glands which acts as a poison and brings on, part or all, of the following symptoms: Increased pulse-rate, thrill in the thyroid gland, inability to approximate the eyelids completely; exophthalmus may or may not be present; lack of control of movements of the eye ball; inability to go up a hill or stairs quickly; easily frightened; inability to sleep at night; headaches; indigestion; inability to concentrate the mind and a general lowered resistance of the whole body. Generally all the symptoms of exophthalmic goiter are present with the exception that the exophthalmus is absent in many cases. Some cases will reach a certain point and improve a long time with simply rest, but as a general thing, sooner or later, the symptoms reappear and the patient gets worse.

In the latter class of cases, if part of the gland is removed surgically when the secreting portion of the gland is not enlarging, good results will be obtained immediately and continue for a long time, but as a general thing, later enlargement will again take place. In those cases in which the secreting portion of the gland is gradually enlarging the author does not think they should ever be operated on either by cutting off the blood supply by ligating, or removing part of the gland. The operation does not prevent the continued enlargement of the remaining portion of the gland, and this will nearly always take place, leaving the patient as bad off in a year or so after the operation as before.

On the other hand, when the X-ray once destroys a tissue it is very seldom that it is ever replaced. It has a special action on gland tissue. This is especially true in the thyroid gland and the spleen.

The X-ray in small doses is a stimulant to any structure, but if increased a little it will cause destruction which will be replaced by reparative processes; if however carried on still further, destruction will be complete. There is no other agent in the world which acts like the X-ray if administered in the proper dosage. Of course, care must be exercised not to destroy too much of the thyroid gland as the result would be just as disastrous as removing all of it surgically.

There is a class of cases in which there is a mixed growth. The author would treat them partly surgically, partly by applying the X-ray, those cases that are malignant he would follow the same course of treatment.

A Burn of the Arm and Shoulder and Its Treatment.—Dr. A. C. F. Halford, (*British Medical Association*, Queensland Branch, *The Australasian Medical Gazette*, Sydney, September, 1911). Any successful treatment of an extensive burn is of enough interest to the pediatrist to be reported. Dr. Halford showed a case of burn of left arm and shoulder in a child aged five years, to illustrate method of treatment and result. The accident happened 14 days ago, and under chloroform, the affected surface was disinfected by thorough bathing in "biniodide" aqueous solution of a strength of 1:3000. Plain sterile gauze was abundantly applied and the whole firmly bandaged. The dressing in situ was then thoroughly wetted with methylated spirits containing a small proportion of biniodide (1:10.000). The lotion either pure or diluted with equal parts of water was applied freely twice a day or as often as necessary to keep the dressings wet. The object of this procedure was to dehydrate the dressing and wound surface and encourage separation of sloughs (and inhibit putrefaction by dry "gangrene"). The dressing was not removed until the thirteenth day after the accident, when the surface was found to be well healed, except a healthy scab or two at the bend of the elbow. In this way an attempt is made to imitate natural processes by encouraging separation of destroyed tissue by dry gangrene and by healing under a scab. After 24 hours when shock had passed off, the child was perfectly comfortable and jolly. She ran about and played, ate well and slept soundly. There was only momentary slight inconvenience when the lotion was applied. Burns of all degrees have been healed in this way with very satisfactory results and avoidance of all distress occasioned by the daily removal of soiled dressings.

Treatment of Furuncles.—*The Canada Lancet*, November, 1911. Quite some success has been obtained in the management of small furuncles with what might be termed the collodium treatment. This consists in covering the boil with thin layers of absorbent cotton, held in place with non-flexible collodium and extending some distance beyond the inflamed area. The main object of this procedure was to protect the furuncle from irritation by the clothing and to prevent the dissemination of bacteria into the deeper parts by friction. Under this method it was found that the infiltration would often be absorbed without the furuncle coming to a head, or that the pus formation would be small and localized.

Recently Dr. Fuchs (*Muenchener Medizinische Wochenschrift*), has reported upon a method of treating furuncles, the aim of which is to limit the inflammation by encircling the inflamed area with a layer of collodium without encroaching, however, upon the central zone. This application is renewd in the course of the day and extended somewhat beyond the margins of the inflammation. It is stated that the constant but gentle pressure causes the boil to point in one to three days and rapidly localizes the infective process. Either of these methods is so simple and easily applied that they are well worthy of a trial in cases of ordinary furuncle.

Report of Two Cases of Sexual Precocity.—One in a girl of six years, the other in a boy who had pubic hair at five months, erections a year later and emissions at two and one-half years. Dr. Henry T. Matchell, Associate Professor Pediatrics, University of Toronto, Physician, Hospital for Sick Children, (*The Canada Lancet*, November, 1911). R. B., born October, 1902, normal labor first child, breast fed, had four teeth at four months. Her height is now four feet three inches. She is perfect in form and well featured, hair light brown, eyes grey and is precocious in many ways. She started to menstruate December 28, 1908, thus being six years and two months old. Menstruation continued for one week. Her mother thinks she lost just as much as she herself does. When the flow first came on, the mother thought the child had been hurt, as she spoke of a fall. Menstruation was ushered in by low spirits, nervousness and tiredness. She had menstruated for one week each month from December, 1908, to the following August, 1909. She missed September and was unwell for one day in October, when she was seen first by author.

Each month she complained of pains in the breast and legs and has headache. Her breasts resemble those of a girl of 12 to 14 years. The pubes have considerable hair. The vagina admits the finger easily, uterus fair size, ovaries not palpable.

The other case is that of a boy, A. B., born February 22, 1906, then weighing eight and one-half pounds. His father is of small statue and has three brothers of normal size, the youngest of whom developed early. He also has two sisters who menstruated at the usual age. They are of the average height and weight. A. B. developed so rapidly that now, at the age of four years, his head is 22 inches in circumference, the same as his father's, the average being 19.7 inches. His chest measurement now, at four years, is 25.5 inches, the average being 26.7.

These weights and measurements show that he is extra well developed physically.

Pubic hair was noticed by his grandmother at five months, and it was well marked and quite easily seen one year later.

The length of penis on dorsal surface measured from abdominal wall when three years and four months old was two and seven-eighth inches. It was abnormally large when lax, and markedly so when erect.

Erections were first noticed when one and a half years old—about the time when pubic hair was apparent to anyone. Latterly when erect the penis seems enormous.

The seminal discharge was first noticed when two and one-half years old, both after playing with himself and at other times. He handles or plays with his penis at times if not well watched.

His voice is loud, resonant and raucous.

His habits are like those of very much older boys.

Diseases of the Alimentary System

Under the Charge of

JAMES WARREN VAN DERSLICE, M. D.

Assistant Professor of Pediatrics, Rush Medical College, Chicago, Ill.

Fatal Case of Haematemesis in an Infant Six Hours Old.—Dr. Francis H. Sprague in (*British Med. Jour*). Two cases of gastro-intestinal hemorrhage in the new-born have been published in the *Journal* this year, one (July 1st) which recovered, and one (April 29th) in which death ensued at 36 hours. A number of cases have been recorded in the *Lancet* and in the *British Medical Journal* since 1900, and the pathology seems somewhat obscure. Amongst the causes given, erosions or ulceration of the stomach are included. A gastric ulcer in a child of 30 hours old dying from hematemesis is recorded by Dr. Goodhart in vol. xxxii of the *Transactions of the Pathological Society.* Gastric ulcer is rare in children. Dr. E. G. Cutler has collected twenty-six cases recorded in the *Boston Medical and Surgical Journal*, the larger proportion being in the female sex. Of these cases six occurred soon after birth, the youngest being 35 hours old, and the others 2, 5, 7, 11, and 15 days.

Recently I have had a fatal case of hematemesis in a child six hours old, and in this case lesions were found in the stomach to account for the hemorrhage, but I regret that no microscopical examination was made. On June 11th, 1908, I was called by one of the district midwives to see a healthy primipara, aged 28; a well developed, full-time female child had been born at 9:00 a. m., and I was wanted to stitch a torn perineum; the child appeared to be healthy in every way. Six hours afterwards I was again sent for, and was informed that the child was very ill, vomiting blood. On arriving shortly afterwards I found the child dead, its garments, as also towels, etc., which had been used, soaked in fresh-colored blood. I was told that the child had been lying by the mother's side since birth. She had noticed it becoming pale, and soon after it vomited a quantity of blood several times in rapid succession, became collapsed, and died just before my arrival and within an hour of the mother having noticed any change. I obtained permission to open the thorax and abdomen that afternoon. The larynx and trachea were clear, and the lungs and heart normal. The stomach was full of blood, and on cleansing the mucus membrane two erosions were found on the posterior surface, infiltrated with fair-sized vessels. From these the bleeding had taken place; the rest of the mucous membrane was pale; the intestines contained blood and meconium, but no further lesions were found; the rest of the abdominal organs appeared to be quite healthy.

Amongst the cases I have been able to look up I have not found one in a child so young, or one proving so rapidly fatal.

Some Clinical Facts About Ulcer of the Stomach.—Geo. F. Koehler, M. D., Portland, Ore. (*Northwest Medicine*, Sept., 1911.) After making the diagnosis I put the patient to bed with the understanding that it is absolutely necessary to remain prone for a period of two or three weeks. When the existing condition and the object to be attained by complete rest is explained to the patient, there is, as a rule, little difficulty experienced in carrying out this plan of treatment.

The next most important factor for consideration is the diet, as it is the food that continuously aggravates the condition. The diet of choice is naturally the one that causes the least irritation of the inflamed mucosa. I usually employ the Lenhartz diet of raw eggs. The eggs are beaten up whole and placed in a cup or glass surrounded by ice. Small amounts of milk are also served cold, the eggs and milk feedings alternate every two hours. At first two teaspoonfuls of the egg and four of the milk are given. First day two eggs and six ounces of milk are used, gradually increasing the amount until the sixth day, when six eggs and twenty ounces of milk are taken; at the end of the week the eggs are reduced, and scraped meat and boiled rice are added. Second week, the eggs are soft boiled and minced chicken is added. If there has been a recent hemorrhage, I give nothing by the mouth, feeding exclusively per rectum.

The clinical picture of chronic gastric ulcer is subject to many variations. The most common symptom is pain which generally comes on soon after the ingestion of food. It is localized and goes through to the back. In many cases you will find a distinct point of tenderness over the epigastrium and very often at the left of the twelfth dorsal vertebra. This so-called dorsal pain is of much clinical significance. Vomiting is often present but by no means is it characteristic; when present it occurs in from one to three hours after a meal and is followed by relief. Hematemesis is probably present in about twenty per cent. of the cases, while occult blood can be detected in the stomach contents and stool in nearly fifty per cent., although several examinations may be necessary as the bleeding is not constant.

Examinations of the gastric contents may show the acidity to be normal or even diminished but usually it is increased. I think, however, we are prone to rely too much upon hyperacidity as an important clinical sign. Therefore I will mention the fact that Ewald reports over one hundred cases of chronic ulcer in which he found an excess of hydrochloric acid in only thirty-five per cent. Howard discovered hyperchlorhydria in but seventeen per cent. of fifty-four cases examined and a subacidity in twenty-five per cent. Other investigators mention many cases that had normal acidity.

An Unusual Case of Intussusception.—Douglas Wood, M. B., Ch.B. Aberd., (*The Lancet*, September 4. 1911). The patient, a girl just two years of age, was admitted to the Evelina Hospital for Sick Children on July 4th, 1910, under the care of Mr. H. S. Clogg. Her illness commenced suddenly a fortnight previous to admission. The initial symptoms were vomiting and the pasage of blood and mucus per anum. Pain was said not to be a marked feature at the onset. The vomiting persisted periodically for a week, and blood was passed by the bowel for four or five days. Constipation was absolute throughout the illness, so that for a whole fortnight no fæcal matter was voided. During the fortnight she apparently had frequent attacks of intestinal colic, but for the greater part of the time she lay in bed in a listless condition, until towards the end when pain became more frequent and more severe, and she then became restless. She took fluid nourishment well after the vomiting had ceased. The abdomen was noticed to swell progressively, particularly towards the end of the fortnight. Several enemata were given, and these were either retained or returned in part without force. There was never any fecal material in the washings, but occasionally some blood and mucus.

In view of these facts the condition of the child on admission was remarkably good. She was well nourished and of good color. Her eyes were clear though rather sunken, and the mouth was drawn down at the corners. She kept up almost constantly a cry, which was more of a whine than a pain-cry, which one might have expected in the circumstances. She assumed the knee-chest position in bed and strongly resented being disturbed. The tongue was dry and clean; pulse 120 and fairly good, and temperature 99.6 degrees F. The abdomen was uniformly and considerably distended. Peristalsis was not observed. Rigidity was absent and the abdomen was free from tenderness. There was too much distention to allow of any sewlling to be palpated. The rectal examination was negative.

One was struck principally with the extraordinary vitality of the child. She seemed to have considerable resisting powers to infection of the peritoneum, as this was freely exposed to infection at the second operation when the wound in the abdominal wall was purulent. The child had suffered from complete obstruction for a fortnight before coming into the surgeon's hands, she underwent two grave operations involving resection of some length of bowel within a period of five days, she had acute intestinal obstruction a few days after the second operation, and a fecal fistula, through which all the intestinal contents escaped, for three weeks. The case serves to show that a child of this age can *exist* with a fecal fistula for three weeks, and that any attempt at suturing the edematous bowel is hopeless. Bearing these two facts in mind, should a similar case present itself, to quote Mr. Clogg, the correct treatment would be to resect the bowel and tie a tube in each end, and later to restore the continuity. In dealing with children the way is surprising in which they will sometimes successfully fight conditions which seem to be hopeless, and the above case which I have ventured to record is a striking example of such.

Infantilism Associated With Chronic Interstitial Nephritis.—Leonard Parsons, M. D., Lond., M. R. C. P. (*The Brttish Medical Jonrnal*, Sept. 2, 1911.) The purpose of this communication is to direct attention to a class of cases which has apparently escaped general recognition, namely, the association of that group of symptoms which we regard as constituting infantilism with cirrhosis of the kidneys. As far as I can find in the literature there has only been one case described. This was a child shown by Dr. Morley Fletcher at the Children's Section of the Royal Society of Medicine, in March of this year under the title "Case of Infantilism Associated with Polyuria and Chronic Renal Disease."

Such, then, are the clinical features—polyuria, pale urine with a trace of albumen, marked thirst, wasting and infantilism, which *post mortem* are found to be associated with a chronic interstitial nephritis, probably congenital, and a hypertrophied left ventricle.

Cirrhosis of the kidneys is an extremely rare disease of childhood. Dr. J. E. H. Sawyer up to the end of 1906 was only able to collect 55 cases. It has been admitted by most writers that the disease may be congenital in origin, and that the chief factor in its causation may be syphilis.

Since syphilitic infantilism is such a well-recognized condition it might be urged that syphilis was the causative factor of the infantilism and the renal disease in the case I have described. However, there was no evidence of that disease to be found in the other organs *post mortem:* neither the clinical findings nor the parental histories supported such a suggestion. In an analysis of 22 cases Sawyer notes that "under-development" occurred in 45.4 per cent. He does not in every case state the mental condition. In his descriptions of his cases he writes: "Small for his age;" "had always been very small for her age and was a dull-looking child;" "was poorly developed and small for her age." In some of these there was no evidence of syphilis. In the case already quoted of Dr. Morley Fletcher the Wassermann reaction was negative. So that I think it will be granted that this "under development" of the body, and frequently also of the mind—or, as I prefer to call it, infantilism—does occur in association with chronic interstitial nephritis, and that apart from syphilis. Guthrie states that his cases were "stunted, undersized and wizened," but that they were "shrewed, precocious and intelligent beyond their years." It would be interesting to have the later histories of these cases, for I think it is extremely likely that, when they reached what should have been the period of puberty, some showed signs of childishness.

Speculation concerning the mode of production of this condition of infantilism is rather fascinating. We know that infantilism occurs in association with some of the chronic disorders of early childhood—for instance, severe and prolonged diarrhea, tuberculosis and pancreatic insufficiency. It is also found in the absence or perversion of certain internal secretions, as in cases of cretinism and juvenile myxoedema, and in some cases of ateleiosis associated with tumor of the pituitary body. Lastly, there are certain types in which no definite etiological factor can be assigned—for example, other cases of ateleiosis and infantilism of the Lorain type. Bradford's researches have shown that the kidneys have a profound effect in general metabolism.

As the result of these observations I have failed to discover that there is any difference between the salt exchange in cases suffering from this variety of edema and that which takes place in perfectly normal children. I do not think that the theory of salt retention wholly explains the condition any more than it does in all cases of edema in Bright's disease.

Deprived of the theory of salt retention, and in the absence of clinical or pathological evidence of heart and kidney disease, we are driven to the tissues themselves for an explanation of the condition. I feel that the number of cases which I had the opportunity to examine pathologically do not justify the drawing of any definite conclusion from the presence of fibrosis in the suprarenal glands, which was so obvious in the two cases examined.

Orthopedic Surgery

Under the Charge of

JAMES K. YOUNG, M. D.

Professor Orthopedic Surgery, Philadelphia Polyclinic, Clinical Professor Orthopedic Surgery, Woman's Med. College, Pa.

The Theory, Technic, and Results of Psycho-Motor Re-Education in Convulsive Torticolis.—By R. B. Kruna, (*Am. Jour. of Surg.*, December, 1911). The so-called convulsive torticollis is a form of "convulsive tic." It is a disorder of the volitional centers of the central nervous system.

The purpose of treatment is to strengthen the two factors of the patient's conscious volition, the initiative and the inhabitive. The treatment requires years of painstaking exercises of motion and immobilization of the affected muscles.

The Operative Treatment of Congenital Wry Neck.—By James K. Young, (*Am. Jour. of Orth. Surg.*, November, 1911. The author describes the anatomy and the anatomical relations of the sterno-cleidomastoid muscle. The pathological changes found in the torticollis consist of shortening of the muscular fasciculi and increase of fibrous tissue throughout the muscle substance but especially near the attachments of the muscle. The etiology of the condition is probably traumatism of the muscle with ensuing inflammation and cicatrazation.

In operation, the author uses the open method by a vertical incision directly over the part of the muscle to be divided. The part of the muscle most contracted should be first divided, but the division of the clavicular portion is the most important part of the technic, as it is also the most dangerous.

After section of the contracted portions of the muscle, the neck should be stretched and the head fixed in an over-corrected position. The plaster dressing remains on for three weeks, after which time massage and exercises should be employed.

The best time for operation is about the sixth or the twelfth year.

The author reports four cases representing four different types, according to the portion of the muscle most contracted. All were treated by the above described methods with perfect results.

X-Ray Studies of Chronic Arthritis; together with a Criticism of Present-Day Classification, by Geo. R. Elliott, (*Am. Jour Orth. Surg.*, November, 1911). The author, by skiograms of twenty-five selected cases, together with some post mortem specimens demonstrated the following conditions: (1) loss of cartilage; (2) increased density of bone; (3) new bone connected with articular ends entering into the joint; (4) new bone formation separated from the joint; (5) new bone along the shafts of the long bones of the hands; (6) bony ankylosis; (7) spurs at head of long bones; (8) transparent areas; (10) joints showing complete disorganization; (11) rarefactions of bone; (12) erosion of bone; (13) subluxations and dislocations.

The two chief findings in all cases are atrophy and destruction of bone, and hyperplasia of bone. But to classify these arthritides as athrophic and hypertrophic is misleading because the two conditions go hand in hand, both being in operation at the same time in by far the greater number of cases.

Chronic arthritis is clearly a secondary process springing from some primary infective or toxemic source. The problem is complicated in certain cases by central nervous influence, by disturbance of glandular secretions, etc.; so that the end process, the arthritis is bound to be multiform in its manifestations. It is by discovering the different primary foci and conditions that the entire subject of chronic arthritis will eventually be cleared up.

The Life and Work of Robert Koch.—By Wm. W. Ford, (*Bul. of the John Hopkins Hospital*, December, 1911. The author presents an interesting epitome of the life and work of Koch, the founder of modern bacteriology. Kochs' first great work was to devise the technic which reduced the study of micro-organisms from a chaotic condition to that of an exact science. These methods are still in use and have suffered little or no change in a quarter of a century. He began this work by a study of the authrax bacillus while engaged in the arduous duties of a country practice. This inventive and constructive period of his work ended in 1881.

Thence forward Koch and his pupils applied these perfected methods of technic to many conditions and epoc-making discoveries followed one another fast in the next few years. The right method had been found, and the rest was easy. The pupils of Koch include many of the foremost investigators of the present day.

In 1890 was described his preparation of tuberculin tuberculosis. For the first and last time in his life Koch departed from the exact and rigid methods which at other times he always employed. He failed to demand of himself rigid proof of his statements, and the unfortunate result is the one blot on his reputation.

He was a man of prodigious energy. To him and his pupils belongs the credit for cleaning up the etiology of the majority of the infectious diseases as we now understand them. His investigations led him to India, South Africa, Uganda, and Central Africa. He lived in the sleeping sickness country on an island in Victoria Nyanza for months studying this dread disease, at which time he introduced the use of atoxyl in the treatment of try ponosomiasis.

The latter part of his life was saddened by ill health, by loss of friends and official honors through his own conduct in his family life, and by his disappointment that his tuberculin had not become the great healing agent he had expected and hoped it would be.

He died May 27th, 1910, in the 67th year of his age.

BOOK REVIEWS

Retinoscopy (or Shadow Test) in the determination of refraction at one meter distance, with the plane mirror, by James Thorington, A. M., M. D. Author of "Refraction and how to refract;" "The ophthalmoscope and how to use it;" Professor of diseases of the eye in the Philadelphia Polyclinic and College for Graduates in Medicine; Ophthalmic Surgeon to the Presbyterian Hospital; Ophthalmologist to the Elwyn and Vineland Training Schools for Feeble-Minded Children. Sixth edition, revised and enlarged, sixty-one illustrations, ten of which are colored. Price $1.00 net. Philadelphia, P. Blakiston's Son & Co., 1012 Walnut Street, 1911.

This little manual contains a clear, concise exposition of the author's method of estimating refraction of the eye. The methods described are not so complicated as taught in other hand-books. It gives a clear, but brief description of the means and manner of retinoscopy, together with the particulars of the natural laws upon which it is founded. It is intended primarily for college students and post-graduate workers, yet it is sufficiently complete for the use of the ophthalmologist and we can most emphatically recommend this little work to the physician in the study of this method of determining refraction. Dr. Thorington has elucidated the text by 24 good illustrations.

The Practice of Surgery, by James G. Mumford, M. D., Instructor in Surgery in the Harvard Medical School. Octavo of 1015 pages, with 682 illustrations. Philadelphia and London: W. B. Saunders Company, Cloth, $7.00, net; half morocco, $8.50, net.

This book is rather an unusual one in several ways. It is simply a high-class discussion of general surgery from a clinical standpoint. While it seems to be intended for the student, it cannot be said to be the best text-book in the world for the undergraduate. It is, however, a most valuable and interesting study for the general practician who wants to sit down and read a very clear discussion of an important subject by a real master. There is much of value there, and it is not hard to get at. The text is good, and the illustrations singularly helpful.

The arrangement of the text is the most unusual feature of the book. There are no preliminaries. The author plunges directly into the discussion of the abdomen, leading off with appendicitis, of which there is quite an extensive consideration. Then follows the pelvis, the genito-urinary organs, the chest, the face and neck, head and spine, and finally the whole field of minor surgery. It is the author's aim to place surgical practice before the reader in the order of its importance, as determined by bedside experience, rather than in the conventional manner. Still, it cannot be said that there is entire lack of system, in fact, the treatment of given subjects is uniform and consistent. The author avoids most of the controversial subjects, and does not seek to enter the special fields to any great extent. Treatment is nearly always good, diagnosis not so much so The various chapters into which the book is divided are all ample, but those on minor surgery are especially full and helpful.

A Mother's Guide. A manual for the guidance of mothers and nurses, by Francis Tweddell, M. D. Alumnus Bellevue Hospital, New York. Fellow of the New York Academy of Medicine; Assistant Physician to the Babies' Hospital Dispensary, New York. Published by James T. Dougherty, bookseller, 409 and 411 West 59th Street, New York.

The author's aim in the preparation of this little book has been to give clear, simple, concise, directions for nursing and artificial feeding of infants and children. The work is divided into chapters and each chapter is complete within itself. Here will be found the information that every nurse and mother should be well acquainted with. This is a book that ought to be in the hands of every nurse who has the care of children. Dr. Tweddell has carefully and painstakingly prepared a guide that we can heartily commend to mothers and we predict for it a wide field of usefulness.

A Dictionary of Medical Diagnosis. A Treatise on the Signs and Symptoms Observed in Diseased Conditions. For the use of medical practitioners and students. By Henry Lawrence McKisack, M. D., M. R. C. P., London. Physician to the Royal Victoria Hospital, Belfast. Second edition, 575 pages, 76 illustrations in the text. Cloth binding, $4.25, net. New York, William Wood & Company, MDCCCCXII.

The practitioner often encounters obscure or complicated cases in which much difficulty is experienced in determining just where or what section of his library to look for assistance. In this volume the author has placed within reach of his reader just the aid he most needs, and rapid reference is facilitated by the alphabetical order of the arrangement of the text matter, instead of the usual arrangement according to anatomical or nosological groupings.

In this volume the author has attempted to place within reach of the physician in an easly available form the information necessary to enable him to carefully weigh the more prominent symptoms presented by a case and to distinguish from among the morbid processes present those which produce the symptoms in a given case.

The descriptions of the various methods of examinations are restricted to such procedures as may readily be considered clinical methods, when it is considered of enough importance the physiology and pathology involved in a given case are elucidated and their bearing on the symptoms explained. Beyond such passing references to the affections which give rise to the symptoms under consideration, and their mention in the comparative tables to be found in a number of articles, the author avoids the discussion of diseased conditions and restricts his descriptions to the various signs and symptoms of disease. The consideration of diseased conditions is left to the text-books of medicine, for which the present work is not intended as a substitute, but instead, as a complement to the text-books on medicine and as such it is highly commended by the reviewer.

PEDIATRICS

Vol. XXIV MARCH, 1912 No. 3

EDITORIAL

THE OCCURRENCE AND CARE OF ACUTE BRONCHITIS IN WINTER.

The raw weather of northern winters makes this topic always important. For dwellers in cities winter bronchitis is by no means a trifle. In infants and young children it is the familiar winter substitute for diarrhea in summer, and among adults, particularly those who live under the trying conditions of the tenements, it outnumbers far away all other winter diseases. Undoubtedly the most important element in etiology is the inhalation of bacterial dust. This is flying everywhere in closely built towns and cities, and until people can be brought to realize the danger of promiscuous spitting, pathogenic bacteria in untold myriads will continue to fly. They are thicker, of course, in cars, steamboats and ferry houses; and in those dwellings where register heat is provided from basement furnaces with an "intake" near the ground and no straining apparatus, they are also apt to be numerous.

How the bacteria may be avoided is consequently a grievous question, which for the multitudes who must travel on the streets or in the cars admits of no present answer. Till the external conditions improve the only way of escape is in the increase on one's resisting power. This is, of course, the salvation already of the thousands who do not suffer but for those who do, some simple prophylactic and therapeutic suggestions may not be out of place.

First, as to the prophylaxis; the danger of sudden chilling of the surface of the body is familiar. Some people "take cold with peculiar readiness from sudden exposure of certain parts of the body, as the ankles, in changing on a cold day from high to Oxford shoes; or the neck, when a low collar is substituted for a high one. One should remember, too, that the momentary resisting power of the body is greatly reduced by physical fatigue or exhaustion, and that bacteria will start a growth readily in one case where they might have been successfully opposed in the other. The air one breathes is also of prime importance. Air, indoors and out, is vitiated for breathing purposes in various ways: the waste from gasworks, the effluvia of sewers, the chlorine, bromine and sulphur dioxide of laboratories, the formaline vapor of medical museums, are as fruitful means of lowering the tone of bronchial mucosa, as the better understood matters of human exhalations and promiscuous dust. That tobacco smoke harms acute cases goes without saying, though with the chronic ones it may be otherwise. Ventilation therefore is a question of urgent importance, upon which however, this would not be the proper time to enlarge. Daily cold bathing, particularly of the neck and chest, is an excellent prophylactic. Delicate and aged persons may substitute for the plunge or the shower simple cold sponging.

When once the bronchitis is caught the patient should simply go to bed at once (with or without the existence of fever) and stay there till well on the road to recovery. Steam inhalations (medicated, perhaps with carbolic acid or compound tincture of benzoin) will be of service. Great care should be exercised about the ventilation of the room and a thermometer should be kept (on the level of the bed) at 65 or 66 F. Light diet, a purge and ammonium chloride with heroin will be enough in the way of active treatment. Physical exercise should be sparing during convelescence till all danger of relapse has passed. In fair weather, and after defervescence the patient should wrap up warmly and lie in the air on the veranda, if such a structure is available.

When city cases come to the doctor's hands after five or six weeks of alternate improvement and relapse, the patient should be sent away as promptly as possible to the country, if the circumstances permit, to a southern climate. In the choice of a climate sunshine, atmospheric dryness and reasonable equability of temperature are of more importance than mere warmth. In this connection it would be well to warn the patient to take his heavy underwear and overcoat south with him, for no weather is made to order; no later than last week it was 16 F. at Charleston, S.C., 17 F. at Camden S.C., and not much above this in northern Florida. These are temperatures which are quite low when one remembers that southern houses are not built to withstand the cold. A well known professional man in New York, who has immense experience in such matters, remarked recently that his more delicate cases he did not permit to come north again till the 20th of April. Robust young persons will often get well of the most obstinate bronchitis in a week or ten days under wise climatic treatment, and may come home as soon as they are restored to normal health.

THE FAD OF FAT AND FAT FREE MILK IN INFANT FEEDING.

Barely a decade ago almost every text book on diseases of chldren expounded the gospel of top-milk feeding. Leading pediatricians throughout this country were vieing with one another to adduce endless statistics to prove that top-milk feeding was the best, nay, the only rational mode of feeding for infants. Utensils galore were placed upon the market to facilitate decanting of cream, lest some of it be lost in the depths of the "unwholesome" bottom milk. Ingenious feeding schemes with minutest percentage calculations were elaborated and spread broadcast to assist the "inexperienced" general practioner, blindly to copy the ironclad formulae. The casein of the cow's milk, we were told was the killing element, the abominable casein that was intended only to nourish the calf! And now, lo and behold! the same authors and their favored and faithful disciples are falling over each other in their ardor to proclaim aloud that the babies of today can most easily digest the proteids, casein and curd— with boots and breeches and all; but that it is the fat that is destroying or crippling the many innocent little lives! What a perversion of scientific medicine! Will the rank and file of the profession ever come to their senses and realize that it is not here to be guided or rather misguided by a handful of pediatric apostles with notions revolving in their calvariums? Is not nature a guide more confidently to be trusted? Woman's milk, which is intended for infants, to be sure, contains a high percentage of fat (3 to 5 per cent) and a low percentage of proteids (1½ per cent) and yet almost invariably agrees with the babies. The sooner the physician will appreciate that individualization is the key note to successful infant feeding; and that some infants do well on high fat and some on low fat: that some infants do better on high proteids and some on low proteids, the quicker will he be in the enviable position to give each baby its due.

LAVAGE: TECHNIQUE OF, IN INFANCY.

Lavage or stomach washing is very useful in the treatment of vomiting in infancy; during the first year of life it is easily carried out, but in older children it is much less easy and for that reason less often practicable. The method of procedure is as follows: an oesophageal tube, especially made for infants, or in default of this an ordinary Jacques rubber catheter No. 12 or No. 14 is fixed on the nozzle of a glass funnel, or still better to a short piece of glass tubing, the other end of which is connected with a glass funnel by a piece of rubber tubing. Immediately before use the oesophageal tube is warmed and lubricated by dipping it in hot water and then smearing a little glycerine over the lower two inches. The infant should be supported on the nurse's lap in a semi-recumbent position the head should be supported on her left arm. The operator depresses the infant's tongue with his left forefinger, but should be careful not to put his finger far back on the tongue, for in this way retching is sure to be excited; with his right hand he directs the tube straight forwards and slightly downwards in the middle line, until the tube impinges on the posterior wall of the pharynx, when it will usually by its own flexibility curve downwards so as to pass without difficulty into the oesophagus: it is then pushed on quickly into the stomach. If the infant vomits besides the tube, as it may do, especially if too small a tube is used, it is usually wise to withdraw the tube at once, otherwise there is some risk of the vomited material being drawn into the respiratory passages, an accident which is happily exceedingly rare. After the stomach has in this way evacuted great part of its contents the tube can be passed again without risk.

The fluid which we have most often used for lavage is a solution of sodium bicarbonate, one or two grains to the ounce, but sodium chloride can be used similarly and in some cases seems more suitable. The temperature of the fluid should be 100 F., three to four ounces may usually be allowed to run into the stomach and then evacuated by lowering the funnel below the level of the patient, and this is repeated until the fluid comes back clear; so that fifteen ounces or more may be used altogether.

PAPYRUS EBERS.*

Some time ago announcement was made through the pages of this journal that Dr. Carl H.von Klein had completed an English translation of the Papyrus Ebers, and that its publication in book form depended upon an advance subscription list of one thousand names. As a result of that announcement and the interest shown by Dr. von Klein's freinds, six hundred subscriptions have been secured. The enterprise drags at this point and something must be done to arouse the profession to the importance of preserving this valuable manuscript. Four hundred additional subscriptions must be secured.

The Editor has had an opportunity to examine the elaborate manuscript, which is preserved with the greatest care and affection by the venerable translator, and one realizes how important it is that the author of the translation should see the ideal work of his life through the press. It is a question in fact, whether the translation will not be lost to science just as Eber's work was lost to us, by the author taking it with him to his bier, if he is not spared to finish the work of publication.

Dr. von Klein has spent twenty years of odd moments of a busy, useful life, mostly devoted to the literature of our profession in this work of love, and it will be regrettable if it is now lost when so little will not only preserve it to us, the profession, but give its faithful author the satisfaction of seeing it in print

The book will consist of 650 pages, 7x10 inches, in two colors (red and black) similar to the original, with six plates, bound in one volume. Subscriptions may be sent directly to Dr. Carl H. von Klein, Medical Department, John Crerar Library, Chicago, Ill. Dr. von Klein will publish this volume personally, and it will be sold only on subscription.

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*Surgery, Gynecology and Obstetrics

PEDIATRICS

ORIGINAL ARTICLES

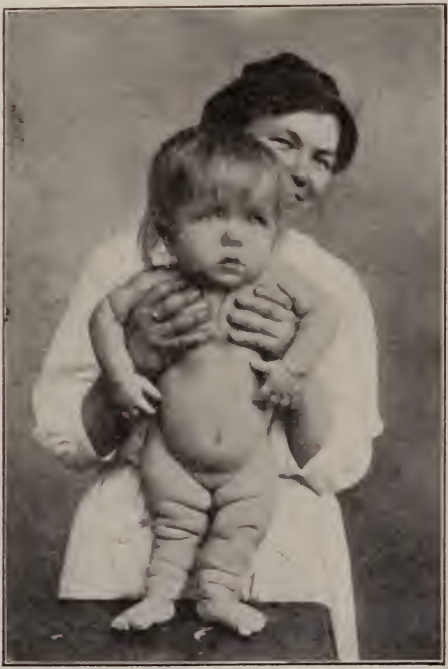
ACONDROPLASIA.

BY

GEORGE DOW SCOTT, A. B., B. S., M. D.

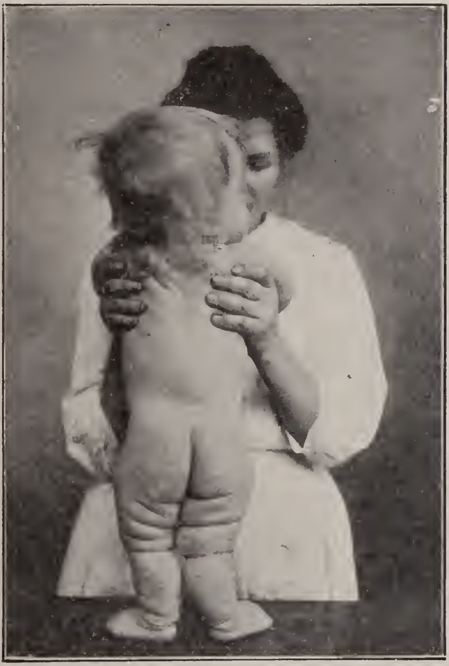
Instructor and Assistant Attending Physician to the New York Post Graduate Medical School and Hospital and Children Service; Chief Pediatric Clinic St. Mark's Hospital; Consulting Pediatrist to the Nassua Hospital.

These abnormalities are usually born prematurely or are dead at term, but if they live they grow stronger, often acquiring great strength. Early writers confounded this condition with rachitis, mongolism and myxoedema.

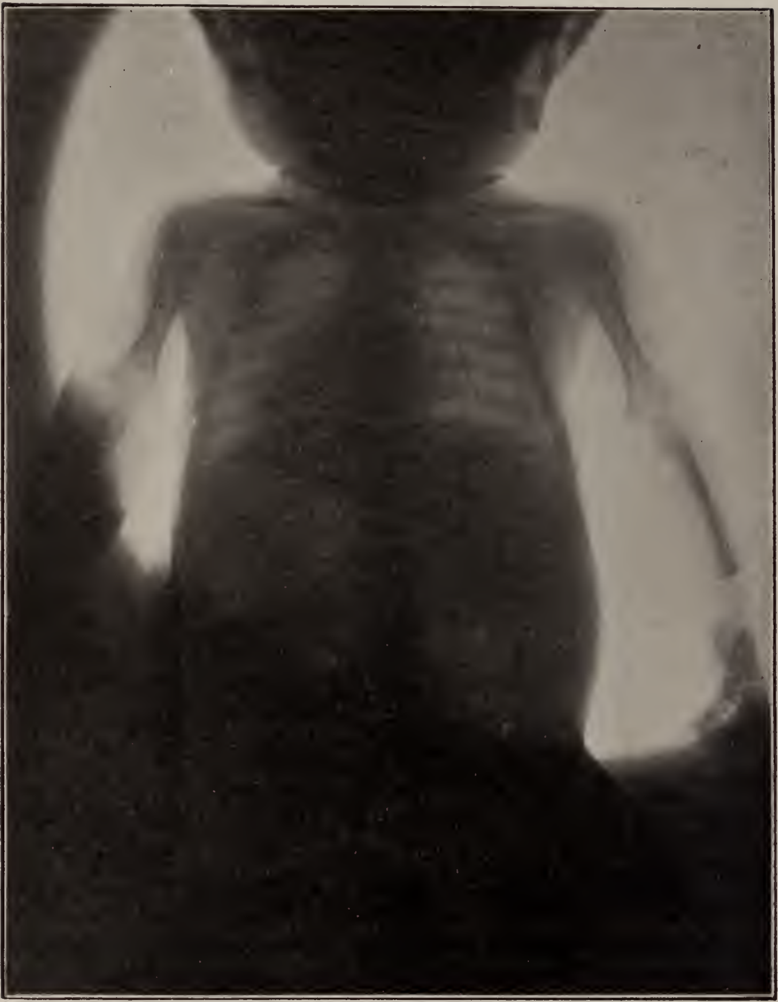


Probably the earliest published account of a patient was in 1791 when Sommering reported what was undoubtedly a case of chondro-dystrophy. In 1836 Busch gave a good description of a case; but in 1860, H. Mueller gave a still better description and wider, clearer, more intelligent observations. Urtel in 1873 reported identical findings to those of Mueller. Later Eberth, Schidlowsky, Kirchberg, Merchand and Kaufman cleared up its obscure pathology.

It is to be remembered that the etiology of chondro-dystrophy is uncertain. Two of my friends cited me patients where chronic alcoholism was found in the parents of one, while syphilis undoubtedly existed in the grandparents of the other.



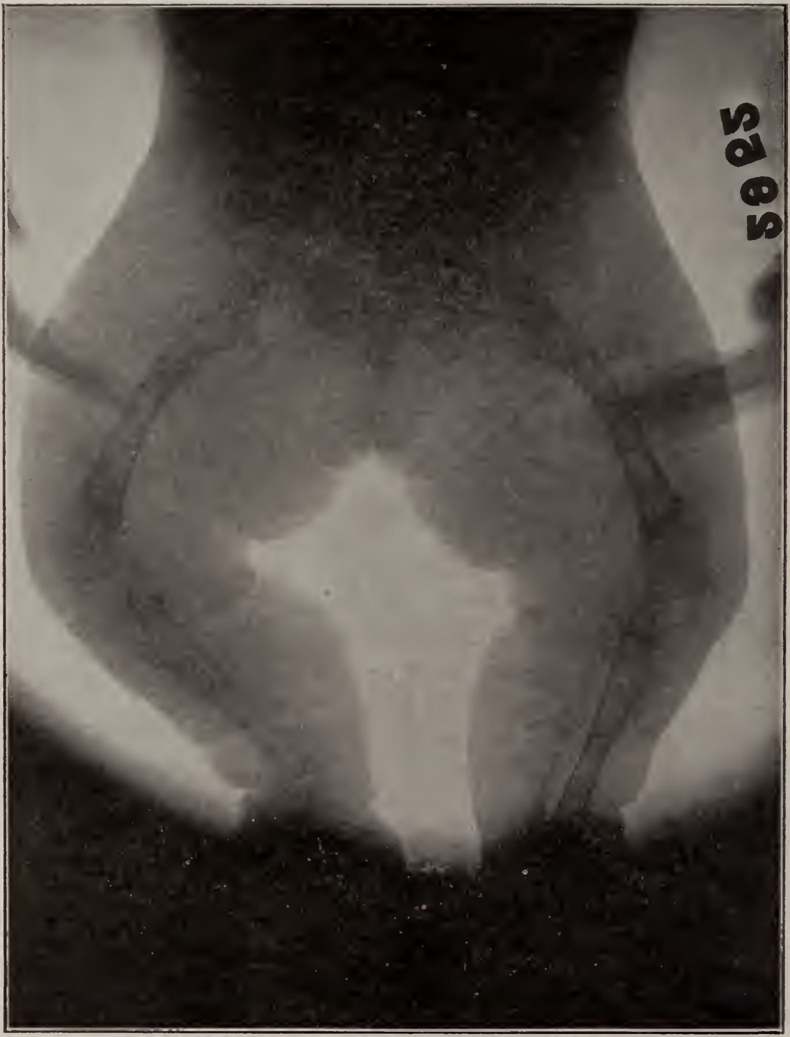
Riesman is very emphatic when he says the disease has nothing in common with rickets or cretinism, but like cretinism may be due to hypothyroidism. If the etiology is uncertain, its pathology is certain. The pathological process is a disturbance of the normal ossification of primary cartilage whose vascularity is increased. Strange to say the disposition of calcium salts, no matter how great the abnormalities in the



cartilage, goes on normally. The line of calcification is found to be fairly regular and the formation of osteod tissue and its ossification is typical. Moreover, periosteal bone formation is both normal and regular. In this pathological cartilage formation the flat bones with the exception of the spenoid and the vertebrae escape, while the long bones, particularly those of the extremities suffer, says Holt.

My own case, the patient shown in the photographs and radiographs was born July 25, 1910. The delivery was normal. One other child of seven years is well and shows nothing abnormal. The parents are healthy Poles. The mother denies miscarriage or any lingering illnesses. The father is a hard working tailor. Alcoholism and syphilis are denied in the parents or grandparents. The child's weight on October 24, 1911 was 20 pounds 4 ounces, its temperature 99.2 F., the pulse 120, the respiration 28. The infant was nursed up to twelve months, the bottle being then added and the weaning taking place at about the sixteenth month. The child has been always well except for some indigestion and constipation.

The accompanying photographs show this condition of achondroplasia well. The large round head with its protruding parietal and frontal bosses, the small pointed nose pointing upwards as if it suddenly sprang from the face. The small ten-cent size patulous anterior fontanelle is not seen however. Four upper and four lower teeth are present. The hard palate is not high, the tongue, as in cretinism, is held between the teeth. It is not enlarged. The short arms with their apparent but not true epiphyseal "cuffing" is shown well in the cuts. Moreover, close observations show the so-called trident hand its fingers short and nearly of a size, the angular separation however, at the second joint is unobservable. The thymus gland persists and the liver is slightly enlarged. The abdomen is large and protruding. On the lower spine a marked kyphosis is seen. The plates show distinctly the shortened humerus and femur and the demarkation between the epipyhses and diaphyses. The skin of the lower legs is cuffed very markedly and the musculature of the arms and the legs is so weak and premature that the hand and foot, particularly the latter, can be twisted and turned at will in any direction without resistance. The plates show the femur and humerus to be shortened, but only apparently and not really thickened. The mental



condition of the child is much below normal and will ever be thus, I believe.

For those interested, I herewith give the body measurements taken October 16th, 1911.

Circumference of head	21½ inches
Circumference of chest	19 inches
Circumference of lower dorsal over kyphosis	21 inches
Circumference of abdomen below kyphosis	20½ inches
Length of abdomen from middle of ensiform cartilage to symphosis pubis	8 inches
Length of leg ant. super spine to sole of foot	11½ inches
Length of arm acromion process to finger tips	10½ inches
Length of face from ant. fontanelle to lower ridge of chin	9 inches
Length of body from ant. fontanelle to sole of foot over face	27 inches
Length of body from fontanelle down side of head to sole of foot	28 inches

I am indebted to Dr. Frederick H. Albee for the radiographs.

111 West 77th. Street.

CONGENITAL APHASIA.

BY

CHARLES W. BURR, M. D.
Professor of Mental Diseases, University of Pennsylvania

I know of no case of congenital cerebral speech defect, showing itself as motor aphasia, not speech disturbances due to general mental feebleness, uncomplicated by lesions in the brain outside the speech area, which has come to necropsy. This absence of anatomical evidence has been interpreted by some writers to mean that uncomplicated congenital aphasia, i.e. lack of development of the speech centers, or of one or more of them, in a brain in all other regards normal, never occurs. I am more inclined to interpret it by the fact that such patients rarely die, that when they die from some intercurrent disease in childhood, they are rarely under the care of physicians who are enough interested in the question of speech to make an autopsy, and that when they die in older life they so often have become imbecile from neglect that no one studies them at all. Almost all that has been written concerning the speech centres and their disorders has been based on cases originating in adult life. The normal development of the faculty of speech in the child has been closely studied but its pathological variations have been sadly neglected with the one exception of deaf mutism. Permanent speechlessness in children is, in the vast majority of cases, due to deafness arising in infancy or early childhood and the common opinion, which I think is erroneous and based on insufficient grounds, is that when it occurs in the absence of deafness it is merely a part of imbecility and the result of widespread disease. So common is this belief that some of the institutions for the care and education of mutes not only will not undertake to train a mute who is not deaf but will not even examine him, on the ground that a child who can hear and yet can not speak must be an imbecile and hence not a proper person for the institution. So widespread indeed is the belief that all children who hear but do not speak are imbecile and speechless because of imbecility, that but relatively few men have made any careful study of the congenital cerebral defects of speech and the literature, compared with that concerning the acquired aphasia of adults, is very meagre. Most writers dismiss the subject in a paragraph or even less. The difficulties in the way in studying the question are not few. The child born with any great disability, let alone inability of speech, is so handicapped that unless he grow up in the best environment he will become an imbecile by deprivation just as deaf mutes so often formerly did, so that the only cases fit for study, as a rule, are those that are examined young, in childhood, or at the latest early adolescence. The number of mute children who hear is very small so that the very rarity of the affection increases the difficulty of study on account of the trouble in getting material. Furthermore it is not always easy to determine the real mental state of children deprived of speech, especially when, as often happens, they have received no training, worth calling such, of any kind. Their mental development can only be judged by their general conduct and behavior, the sort of things they take an interest in, whether they show normal inquisitiveness, what moral sense they show, their power of emotional inhibition, and how they respond to attempts to teach them not only speech, but knowledge of any kind.

The two strongest arguments against the existence of a developmental aphasia are, first the absence of necropsies proving it, but it is to be remembered, on the other hand, that there are no necropsies disproving it, and second the fact that acquired aphasia in children is so frequently recovered from, presumably by education of the other hemisphere, even when the lesion is destructive. This would seem to indicate necessity of a bilateral lesion in congenital cases and the mere arithmetical chance of symmetrical bilateral lesions occurring confined entirely to the speech centres is much less than that of the occurrence of a unilateral lesion. Nevertheless, I believe there are people who, without congenital or early mental defect, never develop ability to speak on account of disturbances confined to the speech centres, though hearing and the understanding of head words are entirely normal. Such persons are pure motor aphasics. There are others, though of them I shall have nothing to say in this paper, who are congenitally word and letter blind and yet mentally normal. There are still others, of whom I shall have but little to say, who are congenitally word deaf and whose mental deficiency, and they always are mentally deficient, depends upon the speech defect, the verbal amnesia, or rather the inability to fix in memory the impressions of heard words, rather than that the speech defect is a result of imbecility. This is not quite the same as acquired verbal amnesia, which means not only the inability to acquire new words but the inability to recollect those formerly stored in memory. Destruction or absence of the auditory speech center necessarily causes symptoms, but the former, inability to acquire permanently new words, may occur in the adult with retention of perfect power of recollection of words previously learned. So common is this defect in early senescence that it may be regarded as almost physiological; indeed one of the first normal disorders of memory, if one may be permitted such a phrase, is inability to fix new words in memory. Of course there are cases of mutism, in low-grade imbeciles and idiots, in which disease of the speech centres is merely a part of a widespread cerebral lesion. They are valueless for the study of speech disorders.

I purpose in this paper to discuss for the most part congenital motor aphasia, to speak only of mutes who are mute though they hear and understand spoken language.

In using the words "congential aphasia" one lays oneself open to the criticism that, properly used, the word aphasia means the loss of a faculty which has excited and does not therefore include congenital disorders, does nor include the non-development of speech. It would seem, however, to be justifiable to define aphasia anatomically, according to the location of the lesion, rather than to confine its use to cases arising after a certain period of life and from certain pathological changes, and to include cases not only caused by disease or total destruction of an organ which once performed its function, but also cases caused by the non-development of the organ from whatever cause. Whether the non-development shows itself by gross anatomic defect or only by absence of function is not vitally important. It is entirely conceivable that the speech centres may on gross examination show no sign of disease and yet be so poor in well developed cells as to be unable to perform their function. It is justifiable then to call every disorder of speech caused either by lack of development, which means after all only diseases very early in life, or by disease in the already developed cerebral centres of speech or in the tracts going directly from them, aphasia. Mutism is a wider word and includes all cases of congenital absence of speech or, if speech has previously been present, total loss, whether transient or permanent, whether due to aphasia or to disturbances in the peripheral apparatus, receptive or emissive, whether due to disease in the cerebral centres, to deafness, or to bulbar disease, whether from gross disease, or from some anatomical change so minute that we can not discover it and hence speak of it as functional, as e. g. hysterical mutism; indeed it is even broader than this and may be purely psychical, may for example be dependent upon a delusion, as happens often in the insane.

I can not add anything to our meagre knowledge of the morbid anatomy of congenital aphasia because none of the few cases I have seen have some to necropsy and I shall therefore confine myself to a clinical description. My main purpose is to combat the general belief that all congenital mutes who hear and understand spoken language are imbecile, and mute because they are imbecile, to endeavor to prove the error of such belief by a few illustratve cases and to arouse a wider interest in and study of the subject. I do not mean that a child showing by his conduct and behavior about the average ability but deprived of the ability to speak on account of lack of development of the cerebral speech centres, will under the circumstances and environment in which such children usually are brought up, grow into a mentally strong or even average person, but simply that he is potentially normal in mind and if given proper environment and education will attain to average mentality. On the other hand if he become mentally weak, it is because of an avoidable accident of environment and not a necessary result of his disease. This is not true of the genuine imbecile no matter how much time, skill and worry is wasted in trying to make him normal. The congenital motor aphasic is worth the trouble, the imbecile is not. The former may be backward in development and finally feeble minded but it is from the the same cause that neglected deaf and blind children are, or rather become, mentally feeble and not from weakness of the cerebral cortex that has to do with thought. For centuries deaf mutes were regarded as imbeciles and the deafness was regarded merely as a symptom of their mental state. It was not until it came to be known that deafness was the cause of the mutism and was due to disease of the peripheral apparatus of hearing that it was proven they were not inherently of low mental grade. Now the motor speech centre is quite as much a peripheral apparatus of speech as the ear is a peripheral apparatus of hearing. It does not originate speech but prepares it for utterance and sends the impulse to the bulbar centres. It matters nothing that it happens to be located within the cerebral hemisphere. The centres of speech which are really and closely associated with intellection are the sensory ones, the centres of "internal speech," specially the auditory speech centre, and disease or lack of development of it certainly always produces some and usually very marked mental degeneration. There can be no thought without "internal speech" but there can be "internal speech" with a destroyed motor speech centre and presumably with an undeveloped one, just as there can be and is normal thought and mind in a bulbar palsy making articulation impossible.

It is perhaps advisable, in order to avoid misunderstanding, to define the word imbecility as used here. I use it then to include all cases of defect of reason arising in childhood or showing itself from infancy whether due to gross disease of the brain or to disease arising elsewhere which secondarily affects the brain, but excluding cases in which the mind is unable to gain experience of the outside world because of any disease of any of the sense organs. Practically the only two of importance are hearing and sight because the other senses take but a minor place in education. In imbecility also there is always moral defect. The lives of imbeciles may be harmless but when such is the case it is always because they are physically unable to be harmful, or they are so mentally defective as to have no motive for evil acts, e.g. the person who does not know the value of money will not steal it, or, because of the lack of sexual development, which unfortunately usually occurs only in the lowest grades, there may be no temptation to acts of a certain kind and thus the patient may retain an innocence which is a very different thing from morality.

The first patient's case is of interest not only on account of the motor aphasia but because of a curious ataxia in the voluntary movements of the muscles of the face and tongue. He also suffers from congenital syphilis which is probably the cause of all his symptoms. His history follows:

Case 1.—A boy, twelve years old, was brought to my clinic at the Orthopedic Hospital and Infirmary for Nervous Diseases on account of inability to speak. He was born and has always lived till recently in a country almshouse. Though entirely speechless and indeed mute save for a few inarticulate sounds, he understands all that is said to him. He is biddable and good natured. His life in the almshouse, I am told by those who rescued him from it, was passed without proper care, save that he was clothed and fed. No attempt was ever made to teach him to speak, to read, or to write. Considering the environment in which he has always lived and his physical disabilities he is intelligent.

Physical examination showed the following. He was short for his age and under weight. The frenum of the tongue was short. The laryngoscope revealed no reason why he could not speak. The tonsils were somewhat enlarged. His vision was poor; Dr. Langdon reported; - O.D.V.5-20 plus., O.S.V.5-20 plus. Pupils equal and normal; visual axes diverged about 20 degrees. Motions full in all directions. Media clear, discs oval with decided loss of capillarity, especially of the papillo-medular bundle. No other fundus changes. Visual fields full. There was no palsy of the face save that he could not voluntarily close the eyes, but he had considerable trouble in properly co-ordinating voluntary facial movements. He winked reflexly but could not voluntarily close the eyes or indeed drop the upper lids at all. When he looked down the upper lid followed the eyeball. This inability to close the eyes was the only voluntary facial movement which was entirely absent but all the others were extremely awkward. Thus he could not promptly and accurately put the lips in the proper position to make any sound in which the lips are needed. Indeed he could imitate any facial movement, whether it had to do with speech or not, only awkwardly, ataxically. The same thing was true of the tongue, and it was not due to the tongue tie, because though the tongue was moved incoordinately, it was more free in movement than is required in speech. The trouble was not in extent but in control of direction of movement. Difficulty in facial movement was not due to spasticity, such as is seen in spastic diplegia. Emotional facial movements were performed very much better than voluntary ones e. g. pleasure and pain were normally expressed. There were no disorders in reflex facial and buccal movements e. g. he used the tongue well in moving food in the mouth. His gait was very awkward but not paralytic, nor spastic. Station with eyes open or shut was good. He used his hands very awkwardly. He had Hutchinson teeth and the Wasserman and Noguchi tests were positive. He could neither read nor write but knew the value of single printed numbers. There was no trouble in swallowing, or with the sphincters.

After the use of hydrargyrum for a year he has improved physically a great deal; he can now walk better and is very much less ataxic in his hands. Though he has been better cared for than ever before in his life, efforts to teach him to talk have not been successful save that he can after a fashion pronounce a few words. Very little effort has been made to teach him to read and write: but what little has been done has been unsuccessful. The control of facial movement in general has improved but little. His intelligence, or rather his knowledge, has increased a great deal. Barring speech he learns things quickly and well. His memory is excellent and his moral sense good.

I am not sure how to class the case of the second patient. He may turn out to be one of those interesting instances of very late and sudden development of speech or he may be an instance of true motor aphasia. It is well known that some children do not speak a word until the third year or even later and then suddenly begin to talk and progress so rapidly that in a few months they attain the normal vocabulary of their age, This boy may possibly be an example though I think he is a true aphasic.

History.— He is a boy three years old who has never made any effort to talk, though he understands spoken language quite as well as the average child of his age and also has never tried to walk or even crawl, though he kicks well and uses his hands well. He is well nourished. He does not behave like an imbecile. Indeed barring his speechlessness his mentality appears normal. There is no sign of palsy. His reflexes are normal. Opthalmoscopic examination is negative. He does not present any sign of cretinism and there are no evidences of active rickets. I am inclined, however, to think that his condition is really the result of some nutritional disease which was active in infancy. He shows no signs of syphilis and the Wasserman and Noguchi tests are negative.

The third patient is not a motor aphasic, because he can repeat words immediately after he hears them. His case is worth noting, however, because between his fifth and sixth year he developed a slight ability to learn speech, then lost power to learn any more, though he retained what little he did learn. He can speak a few words spontaneously to indicate his thoughts and wishes (he uses probably about twenty but never in sentences of more than three words) and can repeat quite a number on hearing them but all efforts while he was under our observation for six months to enlarge his vocabulary failed. No new word can be fixed in his memory though his memory for events is good. He understands neither printed nor written words and cannot write.

History.— He is seven years old. His birth was normal. He did not learn to walk till his third year. His hearing and understanding of spoken language are good. His intelligence is fair. He is obedient, good natured and quite as well able to care for himself as the average boy of seven. There are no physical signs of organic brain or spinal cord disease.

The fourth patient would, had she lived in olden times, have been recorded as one of the "wild children." We know very little of her history beyond the fact that she was not born in Philadelphia, and was at one time in a school for the mute and has never talked. When about seventeen years old she was picked up while wandering in the streets by the police and sent to the Philadelphia General Hospital where she has been ever since. She is entirely speechless except for the words "yes" and "no" which she usually but not always uses correctly. During the first year at the hospital attempts were made to teach her to speak, to read, and to write but they were entirely unsuccessful. She hears and understands spoken language. She learned to copy simple diagrams with ease but when it came to letters she failed entirely. She was taught to make and to understand the meaning of numerals. She has worked in the wards ever since her admission and makes a fairly reliable servant. She is below the average mentally but no more than can be accounted for by her inability to speak. There is no trouble in the larynx. She presents no signs of palsy, tremor ataxia, hypertonicity of the muscles or disease of any of the abdominal or thoracic viscera. Had she lived in an earlier century and been brought to the attention of the philosophers of the day she probably would have been regarded as an instance of "man in the state of nature" and have had at least one learned book written about her. Lord Monboddo would have revelled in her case. Seriously there is quite strong reasons to believe that some at least of the "wild children" recorded in the books that describe "human curiosities" were really cases of congenital aphasia. Many of them showed an intelligence and ability to learn which removes them from the imbecile class.

INFANT MORTALITY DUE TO WRONG HOME CARE.*

BY

DAVID E. ENGLISH, M. D.

Visiting Physician to the Arthur Home for Blind Babies, Summit, N. Y.

So much has been said and written in the last few years about the kind of food that is best for infants that I fear we are in danger of forgetting that anything else kills babies besides wrong food.

Granting that the quality of the food is the most important factor in infantile mortality, there still remains a number of other things that are of great importance. Among these are certain errors in the home care to which I would like to call attention. First, the manner of feeding as distinguished from the quality of the matter fed. Most infants are fed too often, and many too little at each feeding. A baby should never be nursed or fed until its stomach is entirely empty, and has been empty long enough to contract and rest. The interval may be three hours, or it may be eight hours; it depends entirely how well the baby handled its last meal. The infant should never be fed as as soon as it wakes; it should first be given water, have its clothing adjusted, and be soothed in various ways; and finally it should be allowed to cry a reasonable length of time before it is fed. This crying is natural and necessary, and is the best exercise the baby gets. It is best to have this crying done in the open air. Nothing should ever be put into an infant's mouth, except its regular food or a boiled teaspoon, not even the mother's finger. The baby's hands, and everything they come in contact with should be kept scrupulously clean, so that the baby will not poison itself. The mother's nipples, or the rubber nipples, cannot be kept too clean, for they are the scource of many fatal diseases.

Infants that are nursed have a much better chance of surviving than bottle feed infants.

Mothers should be encouraged to nurse their babies, and young girls should be so dressed that the clothing will not press at all against the developing nipple.

Cold, heat, and clothing as affecting infantile mortality, are so closely associated that they should be considered together. Healthy infants endure cold better than adults, and are seldom harmed by simple exposure. This is chiefly because the infant has a larger and stronger heart in proportion to its weight than the adult, and also has more blood and softer blood-vessels. On the other hand infants are more easily harmed by heat than are adults. Over-clothing, or hot and humid weather, rapidly enervate a baby and reduce its powers of resistance. A baby will thrive on a food in cold weather that will cause it to sicken and die in hot or humid weather. An infant never catches cold without first having been kept too warm. Too warm clothing is a frequent error at all times of the year, but particularly so in the summer. A baby should never perspire from clothing alone. During very hot weather from 8 A.M. to 8 P.M. an infant should wear no clothing except for cleanliness, and at all times of the year an infant over one month old should be entirely without clothing for one hour each day. This gets the skin accustomed to exposure, and allows the infant to exercise untrammeled. Carlyle says: "Man, by nature is not a clothed animal." Only weakly and delicate babies have to be carefully protected by clothing. Cold air does not harm infants. An infant can take its daytime naps on a veranda in the coldest weather, with a thin veil over its face to mitigate the wintry blasts, and be benefitted thereby.

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*Read before the New Jersey Sanitary Association at Lakewood, N. J., on Nov. 24, 1911, as part of a symposium on Infantile mortality.

A baby that is kept in a warm, poorly ventilated room, and dressed too warmly, becomes an easy prey to bronchitis, pneumonia or tuberculosis. If at the same time it is fed too often and too much, it is in a condition in which any ordinary malady is likely to prove fatal.

Dirt, also, is a potent factor in increasing infantile mortality. Plain, every-day dirt kills many babies. Among the very poor in tenement houses, where the mother must work for bread, the baby is seldom washed, or cleansed. He sits on a dirty floor on which he rubs his hands, and then puts his fingers into his mouth or he has a toy, or that fiendish invention, a "pacifier," which he rubs on the floor and transfers to his mouth. In this way he is constantly inoculating himself with the germs commonly found in dirt. Many of these babies die, generally from intestinal disease. Those that survive have by repeated inoculation become so thoroughly immunized against dirt germs that it akes something very serious indeed to kill them.

Dust.—While I believe in most cases of tuberculosis in the infant the germs are swallowed with milk or dirt that gets into the baby's mouth, still there is no doubt that in some cases the germs are inhaled with infected dust. In cases of mouth breathing the dust is also breathed into the mouth and then swallowed. Babies should never be in a room that is being swept. Many times I have seen an infant quietly sleeping in a room where the mother, and sometimes a tuberculous mother, was sweeping the floor. A tuberculous mother sould never nurse, kiss, or care for her baby; the risks of infection are greater that the risks of bottle-feeding. Germs taken in in this way by the infant remain inactive in the lymphatic glands, and develop into active tuberculosis in adult life.

The infant's bath should be very warm for the first few days of its life. It should then be very gradually cooled until the baby can enjoy a bath that is almost cold without shock. This hardens the skin against sudden drafts and changes of temperature, and prevents sickness. Many American mothers are lacking in the faculty of discipline, and are too tender-hearted with their babies. They yield too readily to the infant's demands and the more they yield the more the infant demands, until the result is a weak, pampered baby that cannot possibly go through an attack of scarlet fever or diphtheria and come out alive.

Many babies suffer from too much coddling, and are rendered weak and peevish thereby. On the other hand some babies suffer from lack of motherly attentions, and manifestations of mother love. This is one reason why babies in institutions do not do so well as babies in homes, and partially explains the success of the carefully farming out of infants among selected mothers, under the guidance of specially trained nurses.

There is no good reason why a healthy infant that is properly fed, properly clothed, kept clean, not pampered, and properly mothered, should not pass successfully through scarlet fever, diphtheria, and the other infantile diseases, and grow to be a strong, healthy adult.

SEXUAL RESPONSIBILITY.*

BY

EWING MARSHALL, M. D.

Louisville, Ky.

The subject of sexual responsibility should be discussed by physicians as far as possible in an unprejudiced way. No mawkish sentimentality should be permitted to warp professional judgment, nor biased statistics be used to further preconceived notions. A learned writer on another subject said:

"Lastly, come those satisfied, self-confident men who are 'cocksure' of everything, who never think of holding their judgment in suspense, men who have never troubled themselves much with real thinking, have never doubted and never investigated. They make sad the seeking souls whom God has not made sad; they unconsciously make void the word of God by their traditions, teaching for doctrines the commandments of men."

Sex is the distinctive difference of organic beings expressed by male and female. Male has been defined as the begetter of young, and the female as the conceiver of young. The word sex perhaps originally signified division, coming from secare, meaning to divide or to cut. Whatever its origin, sex (meaning male and female) extends nearly if not completely throughout the animal and vegetable kingdoms, and whenever there is no distinctive organism, they are either sexless, or both in one, hermaphroditic.

Doctor Anna Shaw, in a late speech, is accredited with saying, probably in jest, that women rejoiced that sex was not imputed to Deity. Yet, taking her seriously, I must say that all references to a personal God in every religion with which I am at all conversant, intimate at least the supreme God to be of the masculine gender. But leaving that point to be discussed or not as you may see fit, I will assert that from the beginning of records, with rare exceptions, in the natural world male stands for strength. Certainly this is so of the physical, though women in some quarters are contending that they are the equal if not the superior of man mentally. Again they say that we must not take statistics to argue on this subject, for man has generally been the compiler and favors his sex.

The first questions I wish you to discuss are with reference to children: (a) What shall we tell children? (b) When shall we discuss the sexual question with children? (c) Who shall be the enlightener of children with reference to their sexuality? (d) Shall there be any difference in the instructions given to girls and boys?

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*Read before the Louisville Clinical Society.

As a rule, I believe knowledge is power although it may be a burden and, likewise, I do not believe ignorance is a protection although it may ward off some temptations. Children should be encouraged by their parents to make the mother their confidant and enlightener. When a girl or boy notices the sexual relations between animals, the mother should grasp the opportunity to answer the questions, and in as simple a way as possible instruct the child upon this vital subject. Put it on high grounds, instill into the child that it is the holy of holies, with boy as well as girl. Tell each the momentous consequences following a few seconds of intense gratification. Explain conception from the seed, the plant and the barnyard to the human being; likewise explain the dangers of contamination and the frightful sequelae which are likely to follow. Whenever a child asks questions, it is old enough to know something and should not be left to the chance acquaintance, possibly a vicious one, to gain such important information, for the first impression is often the most lasting.

Second, is sexual intercourse essential to a perfect physical and mental life? This question I have been frequently asked, not by the young alone but by women and by those who are the students of life, preachers, priests, and teachers. The great apostle to the Gentiles, Paul of Tarsus, said much on this subject, but when condensed into one short sentence, as I understand his writings, his advice reads: "Celibacy is best, unless you burn, then one had better marry."

There are human beings so constituted, even among men, more commonly among women, who are sexually so cold that possibly if not seriously importuned would go through life apparently with impunity without sexual intercourse, though I know of no means of proving it either way. Again, there are those who are apparently from birth consumed with sexual desire to such an extent as to be really maniacal on the subject. Between these extremes the majority of people are found. Whenever a patient of mine, male or female, approaches the latter extreme, I have always urged early marriage as a prevention to vicious living.

Third, granting that to a certain proportion of the human race sexual intercourse is at least not injurious, in moderation what shall be determined as moderation? I believe that this cannot be placed under any definite rule, but each individual is a law unto himself. The statements of our patients, as a rule are as untrustworthy on this subject as they are on smoking or any other habit. One man says he can indulge himself several times a night without any injury, while another cannot consummate the act once during a night without having a headache the next day. The ability to copulate and the effects following it vary with each individual. The physical and even the mental condition certainly alter the effects of the act. I have seen it stated that Napoleon Bonapart had an epileptic fit every time he consummated the act. We know that sexual ability comes to an end with old age, but that time varies very greatly.

Fourth, does not moderation prolong the sexual life?

Fifth, should only the effects determine the time giving up of this pleasurable act?

Discussion.

Dr. H. J. Farbach: It is a strange fact that parents, whose sexual knowledge was most likely derived from vicious and ignorant sources, will permit their children to acquire information of such vital importance in a similar way. One of the most important questions is when to begin the sexual education of children. However, as Doctor Marshall has suggested, when they ask the first questions they should be given truthful answers in language that cannot be misunderstood. Of course the parent cannot explain to a child four to six years old the intricate problems of embryology, but the planting and growth of a seed can be used to illustrate the different stages of development, and in this way the child can be kept interested and his confidence obtained so that later, the parent will have an opportunity without embarrasment to impart the necessary information concerning sexual matters, and thus cause the child to avoid the acquiring of such knowledge from vicious and ignorant companions.

Sexual questions are sadly neglected in the home, and especially is this true in what is termed our best homes. As Doctor Marshall has intimated, the feeling to instill in the mind of the child is one of reference not of levity, *i. e.*, the idea to be taught is that sex is one of the most sacred of all things. Doctors ought to become more active in the matter of sexual education, and impress upon parents the importance of educating their children in this particular. It is the duty of the doctor to instruct parents how to explain these important matters to their children, both boys and girls. As is well known, almost without exception, the young man indulges in sexual intercourse and thus in a measure becomes sexually educated before marriage, whereas to the female sexuality is a matter of education after marriage and she goes to the bridal chamber in ignorance of what the marriage relation means. Of course it is the habit of most young men contemplating marriage to consult the family physician beforehand, but this is usually to inquire how to prevent conception. However, even at this late date, the doctor can still say a few words about sexual education, and his attitude toward his wife which will bear fruit to that young man all the days of his life!

Dr. L. L. Solomon: It is a great pity that the medical profession has not more seriously considered the sexual question. Even though there appears every now and then a valuable book on the subject, it usually finds slow sale. I venture to say that many of the gentlemen present do not possess a single book on this important topic. If the public at large are to be educated in this direction by physicians, the latter must first educate themselves.

I have made it a rule during my professional career, in talking with parents having children approaching the age of puberty, to emphasize the necessity of imparting to them knowledge on this important subject. I have yet to regret having discussed the question with parents, or with the child in the presence of one or both parents. I have always refused to discuss such matters with the child alone, demanding that the parent be present, because if any good is to come from education of the child, it will not be from one lesson at the hands of the family physician, but from closer observation, contact and instruction of the parents. It is a difficult matter to discuss these questions with the mothers of girls and boys, because of an unreasonable prejudice born of ignorance.

As Doctor Farbach remarked, all young ladies usually know on this subject they learn after marriage, and too frequently they acquire little information then because their husbands know nothing. There are undoubtedly a great many unhappy marriages chiefly because the sexual attitude of the male toward the female is not what it should be. However, as the man does not properly understand such matters, he is unable to adequately enlighten or approach his wife, and thus unhappiness results.

Dr. J. M. Morris: The education of the child is the keynote to this entire proposition, and the proper source of information is naturally the parents. The home is the place for children, and that is where they ought to be taught. If properly educated there they will not go away to gain the information. Therefore it seems necessary that there should exist between the parents and child the most intimate confidence. We ought to go into details with children at the proper time, and gradually bring them to a proper understanding of sexual matters so they will know what to expect in future life. The family physician should present this matter to the parents in the right way. He can best inform the mother and father concerning the things they ought to impart to their children, and when the time comes that children are properly educated in this particular we will have fewer sexual degenerates and sexual neurasthenics than now exist.

The basis of the whole matter is, teach the children in the home so they will not have to seek the information elsewhere. After a boy is old enough to seek companionship on the streets and elsewhere, he hears much that he ought to have been taught at home and consequently learns things in the wrong way. We should instruct the child at home, and it is never too early to begin. Absolute obedience of the child to the parents should be taught from the beginning to insure confidence and respect, and proper appreciation of the sexual education to be given later. This would prevent a large majority of the sexual mistakes which come to our notice.

Dr. M. L. Ravitch: It is an exceedingly difficult matter to educate young children along the lines mentioned by the essayist. It is not easy to explain sexual questions to them in a way which they can adequately understand. In my opinion the instruction should invariably come from the parents or the family physician. I remember a little girl of six or seven who asked her mother where the baby came from, and of course the mother told her the nurse brought it. Later she started to school, and on coming home one day she said: 'Why, mother, you told me the nurse brought the baby, but I heard today that babies come from the inside!" The Mother then explained exactly how babies are born, and the child was satisfied. I think the mother ought to explain to the girl, and the father or family physician to the boy. After telling children all they can understand, it is well to say that later when they grow older they will be told more, and in this way their confidence is retained. Children twelve to fourteen years old are able to understand and appreciate these important matters, and the parents can explain them in a plain concise way so they will be satisfied. However, I do not believe in talking to very young children about sexual matters because they would not properly understand, they have to be educated gradually.

Dr. W. H. Wathen: This is a question about which the world has never agreed, and probably never will. It is a delicate matter to discuss because of the diversity of opinions held by different people. There has been no universal agreement in the history of the world as to the social, moral or religious ethics of the sexual relations. Even in the same age and the same country people have always disagreed. What has been held as ethical, moral and proper in one age or country, has been considered disgraceful in another; likewise what is considered ethical socially, morally and religiously by one person, concerning the sexual relations, is by another considered a disgraceful condition of affairs.

There are a few points, however, on which we may all agree. For instance, that girls and boys should know something about the sexual relations as soon as they are old enough to intelligently grasp the important details without having their minds contaminated with that which they should not know. However, the age at which sexual education shall begin, and just what shall and shall not be told the child, are matters which have never been definitely settled. Certainly the young child should be given no direct explanation of the sexual relations between man and woman until that age when the sexual instinct has developed, and then the explanation should be made by the parents who should be instructed by an intelligent teacher, let it be the physician or somebody else. It is not proper for the physician to talk with young girls and boys and inform them in regard to sexual matters, but he may instruct the parents, which can be done easily if we will simply study the question properly. Let the parents then give the necessary advice to the child at the proper time. This will be sufficient and gives the child all the information required.

If the physician would instruct husbands in matters concerning the sexual relations, that would accomplish much good. I have been thrown in my line of work a great deal with women, and they will talk with me more freely than with their mothers or their husbands. Women often say that they have no pleasure in sexual relations with their husbands, and upon inquiry I have frequently found that these particular husbands failed in satisfying their wives in their sexual relations because instead of approaching and treating them as women should be treated, they simply approach them as do the animals of the field, and as a consequence the women became disgusted with the sexual relations. I have noticed also that a woman may marry a man and have sexual pleasure with him, then becoming a widow marry again and have no pleasure with the next man; or she may have had no sexual pleasure with the first husband, but after marrying the second time has enjoyed the sexual relations. One husband showed no consideration whatsoever for her feelings, approaching her with no delicacy but merely to satisfy his own passion regardless of any consideration for her feeling, while the other wisely pursued the opposite course and thus induced the maximum amount of sexual pleasure to the woman.

Dr. A. D. Willmoth: If there is one question today in which the medical profession, particularly the neurologists, are interested, it is that of sexuality. If we take it for granted that the theory advanced by Prof. Freu is correct, that all neurological irregularities have a sexual beginning, it then becomes an enormous question. At Evansville (Indiana), last week I had the pleasure of listening to three brilliant essays along this line. While it may not yet be susceptible of proof, those who have been working along neurological lines claim they have been able to demonstrate that many if not all the nervous phenomena so commonly observed are the result of sexual conditions which are suppressed in the sub-conscious mind; at least it is claimed this is true of many of the nervous irregularities for which the neurologists are consulted today. Thus the question of sexual responsibility assumes greater importance than ever before and certainly demands the mature consideration of the medical profession. It constitutes a large field because of the vast amount of study and reading necessary to enable one to successfully analyze these people and induce them to divulge the ideas which have been suppressed in the sub-conscious mind.

It is really surprising to note the ignorance of the laity along sexual lines. For instance, how many people ever stop to think what it means when you see old slippers and rice being thrown at a newly wedded couple? I take it every doctor knows the meaning of throwing rice and old slippers. According to the mythological idea, originating many centuries ago, rice is one of the most productive grains in the world, and when it is thrown after a newly married couple it is simply wishing that the wife may be productive. The throwing of an old slipper means wishing that the vagina of the bride may be open or loose like an old shoe!

If children were properly educated along sexual lines it would create quite a revolution in the human family. We take great pains in breeding the lower animals, but there is none whatsoever taken in the breeding of human beings! If girls were adequately educated in the questions of sex which are of such vast importance to their future life, they could not be hired to marry some of the men who, under the present social system, are the most sought after as desirable husbands. On the other hand, if young men knew some of the things well known to us as physicians, they would be more careful in a great many respects. I believe it is the duty of the medical profession to educate the laity along these lines.

Dr. George Jenkins: While I do not wish to be considered an iconoclast or misanthrope, I feel sure one reason why the opinion of the medical profession carries so little weight on questions of this kind is because they so often treat the subject in a spirit of levity rather than as should be done in a scientific straightforward manner. It must be remembered that next to the law of self-preservation, the sexual instinct is the strongest attribute of the human race. Therefore we should not ridicule the theory advanced by Prof. Freu in connection with the sexual question, in other words, we should not condemn a theory about which we know little or nothing. To emphasize this point it is only necessary to recall the history of Jenner and vaccination.

As to the sexual education of children: Parents do not take the necessary precautions in teaching the young along this line that they should, they are prone to leave the sexual education of girls and boys to perverted cigarette-smoking youths and vicious older girls. However, the fact must not be overlooked that the vast majority of young girls who have attended high school a year or two know more about sexual conditions than most of us are willing to believe, and the same is certainly true of boys. There can be no doubt that at the present day the female sex is far more to blame for perverting, *i. e.*, making vicious and immoral, the young girls in schools and elsewhere, than is the male sex. If we will look into this matter carefully, we will find there is not so much ignorance as perverted knowledge. Brides go to the marital chamber with a great many perverted views and but little accurate knowledge.

As to the age at which children should be instructed: As soon as they begin to evince interest in sexual matters, *e. g.*, when they begin to ask if babies are brought by the nurse, etc., they should be gradually trained along the proper lines. If education in sexual matters is commenced thus early, it will be found they are easily controlled. If parents do not enlighten their children, they will absorb erroneous ideas from other sources, to their detriment and to the parents' eternal sorrow! If we would follow the lines indicated by Doctor Marshall and some of those who have spoken, and discuss these matters from a strictly scientific and impersonal standpoint, much good could be accomplished.

Dr. J. W. Irwin: Doctor Marshall made the statement that males are always the stronger of the two sexes. There are a few examples to contradict that, as in certain lower forms of animal life the males have sexual intercourse once and then die. However, these are exceptions, and as a rule the male is the stronger sex, though there are some men who cannot have sexual intercourse without suffering certain consequences.

According to the idea of the suffragettes, the time is not far distant when men will be needed only to beget children, *i. e.*, to be the fathers of children, when the women will have the opportunity of selecting this or that man according to their fancy to be the father of their children! I remarked to one of the suffragettes that this was a very serious question, that it would "greatly overwork some men, while others would have nothing whatever to do!" She finally admitted that there might be something wrong with the proposition. When you come to consider the question of sexual relations between man and woman, I do not see how matters can be regulated for the reason that one individual has so much more sexual desire than another.

When you teach children six to ten years old what the sexual relations mean, you will witness in this country what I saw in France and Italy, *i. e.*, boys and girls between eight and ten years having promiscous sexual intercourse. I saw on the street corners of Rome, (Italy), girls of ten and twelve years, with their front teeth knocked out, soliciting and even begging men to accompany them "just around the corner" to indulge in buccal coitus, and the prevailing price for the operation was ten cents! These children not only offered themselves, but exhibited photographs of their sisters and mothers, stating that if they (the children) did not suit, any other female member of the family could be had at the same price! There was no secrecy about the matter, and these children solicited men openly on the streets in broad daylight! I also saw there houses of prostitution plainly so marked next door to various places of business, the offices of dentists, physicians, etc.

If you teach innocent young children, who have not arrived at the age of discretion, all about sexual intercourse, you are incurring great risks, because they are too young to properly understand and appreciate the significance of such matters. Under the influence of the strongest religion of which we have any knowledge, they have been unable to restrain or control these matters relating to sexual education and promiscuous intercourse, and can anyone demonstrate that such things can be controlled here under less favorable circumstances? I doubt it very much. It is better that we should let ignorance be bliss. In my opinion harm instead of good would result by trying to educate young children on sexual subjects. Let them be taught only after they reach the age of discretion, when they will keep inviolate these secrets of sex and not prostitute them!

Dr. H. N. Leavell: In the matter of sexual education every child must be a law unto itself. When certain tendencies and proclivities are exhibited by a young boy, we say that he is going to make a certain kind of man, and when certain peculiarities are observed in a girl, we say she is going to be hard to restrain, etc.

As Doctor Wathen remarked, many married women say they never derived any pleasure from sexual intercourse. To such a woman it means little to become a widow, but to another who may be very passionate it means a great deal to lose her husband. Women are wrongfully condemned for their sexual activities after the death of their husbands, because no one knows what may be their sexual necessities!

Unquestionably the child ought to be given the proper sexual education and training at home, but few of them ever receive it. There are many physical disturbances referable to the sexual appetite, which could be prevented by a proper understanding of this subject. There is a little book called THINGS A YOUNG GIRL SHOULD KNOW which I think puts the matter of sexual relations to the child in exactly the proper way. The question is discussed so plainly that there is absolutely no restraint on the conversation between the mother and the child, and in the exact way one would expect the mother to discuss the matter with her child. The language is so simple that the child's mind is not unduly excited, and the book may be given to the child as soon as she is able to read. In addition to the book mentioned, there are: WHAT A YOUNG BOY SHOULD KNOW, WHAT A YOUNG MOTHER SHOULD KNOW, WHAT A YOUNG WIFE SHOULD KNOW, and WHAT A YOUNG MAN SHOULD KNOW. These are the best books on sexual questions that I have ever seen, and I have advised that they be carefully read in many of the homes where I have had patients.

Dr. William Jenkins: In attempting solution of this important question it seems to me there are only three legitimate lines along which we can work and expect to accomplish results. First and foremost is undoubtedly education, which constitutes the chief means of preventing sexual errors. The mere fact that there is no consensus of opinion on the subject is no argument against education, it is rather an evidence that we ought to redouble our efforts in this direction. Of course sexual education of the child has to be modified to meet the individual indications, depending upon the age and understanding of the child, etc., but this can be worked out in a satisfactory way. High-minded physicians can do much toward bringing about the desired results. Education is certainly the most important single factor in the solution of this entire proposition, and it can be modified in any reasonable, conservative way.

Second, if there could be established a single standard of sexual morality, *i. e.*, one applying equally to the male and female, this would constitute one of the greatest possible strides in the solution of the sexual question.

Third, legislation of some type or kind, whether it be by actually passing laws or what not, would undoubtedly be of valuable assistance along this line. A young man should be required to present a clean bill of health to the woman he expects to marry, and it goes without saying that the same rule applies to the opposite sex.

I am positive these three things constitute the only lines along which we can hope to accomplish any good.

Dr. Ewing Marshall: So far as my short paper is concerned, I did not contemplate discussion of the vicious elements concerning sexual relations. The idea I wished to convey was that knowledge is far preferable to ignorance on sexual subjects.

In my opinion there can be no question whatever about the advisability of educating children along the lines indicated, and adequate instruction should in no case be deferred until erroneous ideas have been gained from ignorant and vicious sources. As remarked by one of the speakers, the exact time to begin sexual education of the child has never been positively determined. However, I believe children should be told the truth as soon as they are able to understand the significance of these important matters.

The members present are probably no better qualified than myself to speak on this subject. No one can say positively whether it is necessary to the completion of a woman's physical being that she should indulge in sexual intercourse, and the same is true of the male. It must remain a question for the individual to decide. It seems to be true, however, that the more one indulges in sexual intercourse, the more it is desired, *i. e.*, by the very act itself the desire is created to some extent. By restraining this desire it is probable some human beings might be benefited, while in other cases restraint might be positively injurious.

PERTUSSIS VACCINE AS A CURATIVE AND PROPHYLACTIC AGENT.*

BY

E. W. SAUNDERS, M. D.
T. WISTAR WHITE, M. D.
WALTER JOHNSON, M. D.
JOHN ZAHORSKY, M. D.

We have used the vaccine prepared from Bordet's bacillus in 40 cases of whooping cough, some in private practice, and a number at the Episcopal Orphanage and Bethesda Hospital during a recent epidemic.

We have observd no ill effects from its use and obtained benefit in all cases in which the cough was not of more than two or three weeks duration, and in some of longer standing. The improvement in number and severity of paroxysms was often evident in less than 24 hours showing no evidence of a negative phase.

Two cases in which treatment was begun early in the disease developed bronchopneumonia about the third week, but both recovered. The children treated varied in age from three months to eleven years, and in only a few cases was any other medication used. We began with using doses of five million bacteria, but soon concluded that better results followed the use of larger doses, and have adopted the practice of giving the entire contents of one bulb furnished by the experimental department of Parke Davis & Co., so that in some cases regardless of age, the patient has received as much as 25,000,000 bacteria. This is repeated twice at intervals of one week.

As applied to institution work the point of greatest interest to us was its use as a prophylactic. In addition to the cases mentioned above, we used it on 14 children who had been exposed to the disease, but had not yet developed a cough. Most of these having been in the institution since early infancy it can be stated positively had not had pertussis. Some of the others in this group admitted at a more advanced age, may have had it but from the best obtainable history they had not. They received the usual three injections at intervals of seven to eight days and were in daily contact with well developed cases.

Of this group of 14 only one, Mabel, developed pertussis as evidenced by the typical paroxysm which extended over a period of only one week. Notwithstanding its brevity the leucocyte and differential blood-count prove it to be a true case of whooping cough.

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*Read before the St. Louis Pediatric Society)

Seven others developed a cough of mild character while undergoing treatment. The cough was in no way characteristic of pertussis, and in no case lasted over two weeks. One of these, Anthony, three months old, was still living with its mother in the institution in which he was born and where no whooping cough had been for three years, until the epidemic arose. Three days after the first injection, he developed a slight cough which lasted for only one week and was at no time typical of pertussis. But from the blood picture in this case alone, we believed it to be an aborted pertussis. Six of the fourteen so treated developed no cough at all.

Admitting as possible that some of these children may have already had pertussis, we are still sure enough of them to believe, unless natural immunity is much more frequent than generally supposed, that we have a valuable immunizing agent in pertussis vaccine.

The following case illustrates a good result in shortening the course of the disease. No medication other than the vaccine was used:

Paul, 15 months old. Had lobar pneumonia last spring; constantly exposed to pertussis the past three weeks.

July 7, 1911, coughing past week, temperature 99.8; leucocytes, 37500; lmyphocytes, 69 per cent; eosinophiles, one per cent; no physical findings; gave pertussis vaccine, ten million. July 19th, cough severe and typical of pertussis; leucocytes, 19,700; lymphocytes, 83 per cent; vaccine, twenty million. July 27th, leucocytes, 17,900; coughs three to five times per night; paroxysms fairly severe. July 29th, gave vaccine, twenty million; rarely coughs, some nights not at all.

Mabel, seven months old. Is not coughing but has been exposed to pertussis. July 11, 1911, leucocytes, 11,000; lymphocytes 60 per cent; gave hypodermatic vaccine ten million. July 18th, coughing little. July 19th, vaccine, twenty million; leucocytes, 9300; lymphocytes, 73 per cent. July 27th, leucocytes, 10,600; coughs six or seven times a night, not severe but typical. July 29th, vaccine, twenty million. August 6th, rarely coughs; typical paroxysms lasted during only two weeks but from the blood picture and the character of the cough, consider it undoubtedly pertussis. No other medication was used.

Isabel, seventeen months old July 11th, exposed to pertussis and has been coughing past week; no characteristic paroxysms; temperature 100.4; no physical findings; leucocytes, 20,900 lymphocytes, 64 per cent; gave pertussis vaccine, ten million. July 19th, cough severe, typical in character; vomits frequently; leucocytes, 21,200; lymphocytes, 63 per cent. July 7th, cough probably not so severe, about seven paroxysms at night; leucocytes, 14,600. July 9th, vaccine, twenty million. July 9th, P. M., temperature 105°. July 30th, leucocytes polymorphonuclear predominating, 42,000; temperature 103-105; pneumonia suspected August 1st. Bronchopneumonia developed with continued high temperature, but typical whooping cough paroxysms are rare August 20th. Recovery; rarely coughs; no typical whooping cough paroxysms.

Name	Age	Dose and Date Given,	Remarks.
Anthony M.	3 months,	7–11—7–19—7–29 10M—20M—20M	Began coughing few days after first dose, and ceased after one week. No typical paroxysms.
Mabel	7 months,	7–11—7–19—7–29 10M—20M—20M	Coughing began few days after first dose. Typical paroxysms for 2 weeks.
Vivian M.	6 years,	8–24—8–30—9–7 22M— —20M	Developed no cough.
Milderd M.	7 years,	8–24—8–30—9–7 25M—25M—20M	Coughing from first as in a mild cold. Not typical at any time.
Laura W.	6 years,	8–24—8–30—9–7 20M—20M—20M	Coughed little for one week. Not typical.
Mary W.	7 years,	8–24—8–30 22M—21M	No Cough.
Gladys B.	6 years,	8–24—8–30—9–7 20M—22M—25M	Rarely coughed during one week.
Helen H.	4 years,	8–24—8–30—9–7 20M—21M—22M	Rarely coughed, one week, not typical.
Florence	3 years,	8–24—8–30—9–7 22M—20M—25M	Rarely coughed, one week, not typical.
Eddie S.	4 years,	8–24—8–30—9–7 20M—20M—25M	No cough.
Edna S.	4 years,	8–24—8–30—9–7 21M—20M—25M	No cough.
Pearl B.	8 years,	8–30—9–7 21M—25M	No cough.
Matilda H.	9 years,	8–30—9–7 18M—25M	Rarely coughed, not typical.
Seran A.	9 years,	8–30—9–7 21M—23M	No cough.

Anthony M. age three months, large breast fed baby. July 11th. 1911, is not coughing but has been constantly exposed to another case for past two weeks or more. Leucocytes, 12,200; lymphocytes, 64 per cent; pertussis vaccine, ten million. July 15th, leucocytes, 20,900; lymphocytes, 69 per cent; vaccine, twenty million. July 26th, leucocytes, 10,900; ceased coughing. July 29th, hypo vaccine, twenty million.

This baby with its mother occupied quarters with four other children mentioned among these cases. The blood picture and count indicated pertussis even before any cough had begun. It may be that the child was immune, but I believe it was aborted by the vaccine. No other medication was used.

Of this group of fourteen cases, from best obtainable history, none had had whooping cough. All were exposed before the vaccine was given and for a long period afterward. Only one developed pertussis, as evidenced by typical paroxysms which extended over a period of only one week. Seven others developed a cough of mild character while six failed to develope any cough.

Louise, one year old. July 11th, 1911, coughing past four weeks, typical in character; leucocyte count, 20,000; lymphocytes, 70 per cent; eosinophiles, two per cent; gave vaccine, two million. July 19th, coughs as often but not as severely; leucocytes, 19,100; lymphocytes, 75 per cent; vaccine, twenty million. July 26th, coughs only three to five times at night; leucocytes, 17,400. July 29th, hypodermatic vaccine, twenty million. Rarely coughs.

Although vaccine was used late in this case it proved of some benefit. No other medication was used.

Helen H., age three months, well nourished, breast fed baby. May 1st, has been coughing two or three weeks. July 3rd, witnessed typical paroxysm with vomiting. July 8th, gave Parke-Davis Co.'s pertussis vaccine, five million. July 15th, mother reports paroxysms much less severe and less frequent. July 22nd, coughs less, vomits rarely; gave vaccine, ten million. August 12th, rarely coughs, not typical in character; no vaccine given. August 16th, has ceased coughing entirely; no other medication than vaccine was used in this case; while the course of the disease was not greatly shortened, the immediate reduction in severity was marked, the mother insisting that the effect was evident from the first night.

Alice S., six years. July 10th, coughing past ten days; cough typical in character; simple leucocyte count, 11,700; lymphocytes, 40 per cent; eosinophiles, four per cent; gave expectorants and hypodermic of pertussis vaccine, ten million. July 14th, coughing severely and vomiting frequently; vaccine, twenty thousand. July 20th, cough more severe; prescribed inunction of guiacol. July 22nd, cough less severe and less frequent; mother reports a marked difference past two days since beginning guiacol. July 28th, rarely coughs.

This case ran a short course. In doubt as to whether vaccine deserves all the credit, as improvement was first noted six days after administration of the second dose of vaccine and coincident with the use of guiacol.

Conclusions: 1. As a prophylactic agent we have no hesitation in recommending the pertussis vaccine. Whilst it is true that any infection will postpone or interrupt the course of pertussis, this agent alone will absolutely prevent it. The immunity is of uncertain duration, but the injections may be repeated, and it is of the utmost importance to postpone the disease until the first two years of life are past. The failures reported by other observers must be attributed to an impotent vaccine, or an insufficient dosage. 2. As a remedial agent, success depends upon the promptness of administration, and the freedom of the patient from complications at the time. 3. In no case should other treatment be withheld if indicated; especially in infants, who may be spared convulsions or bronchopneumonia by the use of emetics, sedatives and some member of the aromatic group. It is quite possible that much better results may be obtained in late cases by the use of larger doses. 4. In view of the high mortality from pertussis in young children, there should be a systematic effort made to determine the duration of artificial immunity, and to keep them protected.

SOCIETY TRANSACTIONS

ST. LOUIS PEDIATRIC SOCIETY.

Stated Meeting, December 1911.

VACCINE FOR WHOOPING COUGH.

Dr. A. Levy:

I am sorry I did not hear the papers, and don't know just what has been reported.

My experience has been very limited. I have used vaccine in very few cases, and don't know that one can judge results from these few cases.

I have in mind two cases in the same family. Dr. Lippman is familiar with them. The first case occurred in the older child a boy of about six years. The diagnosis was clearly established before the vaccine was used and the effects from the first injection was noticeable. I think I made three injections in this case. From the first injection the paroxysms became less violent and soon ceased altogether. The other child did not have a violent case; there were the same paroxysms but the duration did not seem to be much influenced by the injections. The child is still coughing, rather paroxysmally though it has been about two months since. The child does not suffer in general health, and I might draw conclusions that it had a very favorable effect even in this case.

Dr. John Zahorsky:

I have used this vaccine in about 15 cases in private practice; all but two showed marked improvement.

In the earlier part of the disease you give an injection of 20 millions and the night following there is usually no improvement, but the second night the improvement is remarkable. I can cite at least five of these where mothers told me that it was the first night they had slept in weeks. The third or fourth night it usually gets bad as before, but not always. Usually on the fourth day we give another injection. Then there is amelioration the second night after injection, and these periods of improvement are so marked, so much so that several mothers who were prejudiced against the injections rung me up to tell me of the improvement. One in particular who had seen this improvement asked me to give her child an injection too, so that it is making an impression on the laiety.

In a young baby two or three weeks old with whooping cough, getting those severe cough attacks, becoming exhausted, I give repeated injections, and the disease was kept comparatively mild.

Another case, a boy about eight years of age had a very severe cough. The child developed severe conjunctival hemorrhages. The eyes were bloodshot. While the cough was very severe, he did not whoop. They did not want their house placarded, but they became alarmed and finally sent for a physician. On account of these severe hemorrhages the coughing persisted for a week or two. The eyes were almost closed from hemorrhage in the subconjunctival space. I gave this child about 40 millions. There was such a remarkable improvement the second night that on the third day when I visited the child, there was a very marked improvement in the eyes. On the fifth day following I gave another injection. Since then the child has done very well and the conjunctival hemorrhages have disappeared. So that the vaccine has a place in private practice, at least it has mitigated the course of the disease. The only way to cure Pertussis is for the body to become perfectly immune. We know that after the height of the disease, after the child has coughed for a month or more, the disease is not contagious, but they continue to whoop. It is probably a very mild infection in the bronchial tubes or air passages. In two of my cases I waited for the height of the disease to pass (about six weeks), and then I attempted to shorten the disease by injections. In both I thought I succeeded in doing that. So there is another indication; to try to shorten the course of the disease after the height has passed.

As to prophylactic injections, one was a breast fed baby. It received only 1 cc. and did not take the disease. Another was a child with heart disease who received two injections. In a third child the vaccine injections failed.

If there is any such thing as sub-acute infection due to the Pertussis, the vaccine may prove efficacious.

My experience has been limited to staphylococcus and some little streptococcus and pneumococcus vaccine. We all know staphylococcus vaccine is a very valuable remedy. We are not very familiar with streptococcus vaccine. It seems very irrational to use it if our theory is correct that fever is produced by the disintegration of bacteria. The only place where I think vaccine might be used rationally in sub-acute diseases is where there has not been a general intoxication.

In this connection I wish to report another case where the baby had a persistent pneumonia where the temperature would drop and rise again where the left lung remained solid for weeks, altogether eight weeks. I looked for empyemia in the left lung. It did not seem to get well, and the child was atropic. I did not use any vaccine in that child. Blood was drawn from a pregnant woman and injected subcutaneously, and this child received 10 c.c. daily of the woman's blood for five days. The temperature dropped, and the lung began to clear up.

In acute diseases where there is endo toxin being constantly used and intoxicating the body very thoroughly, I cannot see the rationality of using vaccine. It is only in subacute or chronic cases as whooping cough, where the vaccine can do good because the endo toxin itself enters the blood very slowly.

A word about this vaccination as a cure for whooping cough: Dr. Saunders recommended that 16 years ago when I was student, but I was under the impression that it benefitted late cases, that is to say, if you had a long case, then if you vaccinated, it would stop that late case.

Every now and then a paper comes out with vaccania as a cure for whooping cough. In some few cases it does so wonderfully well. Vaccination temporarily checks the cough at least the coughing period will be held in abeyance, but it will break out later on so that in the early stage, vaccination for whooping cough only delays the whooping cough.

In one of my cases the child received an injection of Pertussis vaccine every day for five days with marked effect. Two weeks later the mother telephoned me the child was much worse, and I gave another injection. There is no doubt that we produce some temporary reaction, but we are not sure that we produce immunity. I think we have very little evidence as yet to say that we do.

Dr. T. S. Hemplemann:

One thing I might mention, Dr. Hurford said that in The Children's Hospital Clinic there had never been any local reaction. I do not think he saw one case that I injected, which showed a little area of infiltration about the size of a pea. I had been very careful with my asepsis, so felt confident this was a real reaction. I injected in the other arm the next time, and the child showed the same thing every time. Otherwise among the cases I saw and the ones that Dr. Hurford reported, there was no local reaction.

Dr. G. Lippman:

Of course I have used Pertussis vaccine for quite a while, as we all have during the summer with the following results:

It is surprising how varying they were. Some showed improvement within 24 hours, and some not at all. In bad cases I would inject every third or fourth day until there showed some improvement.

Dr. A. S. Bleyer:

I have nothing definite to say. I feel the discussion has been very thorough. There is one thing that seems to stand out prominently in this discussion, and that is that every man who has spoken has seen positive results somewhere in his investigation. In all of these series, some babies got well with unexpected promptness, as compared with the results of former treatment of pertussis.

I was greatly impressed with Dr. Hurford's handling of one case, a baby of four and a half months who came to the Feeding Clinic of the Children's Hospital weighing four pounds and three ounces; the smallest baby of which I have any record of this age. It gained very nicely until about five and a half months old, when it contracted whooping cough, and I transferred the case to Dr. Hurford. He reported to me that four injections were given at intervals of four days, when the baby was quite well. I felt that this baby had about as much chance to die as to live because of its former condition, and had told the mother so when I transferred the case.

I had one case in private practice of the type Dr. Zahorsky mentioned of long lasting whooping cough, which yielded very kindly. The child was taken to Chicago but came back in a week, with the cough returned, but it recovered completely after another injection. This child's younger sister contracted a very suspicious cough. I gave it the vaccine and the child did not develop whooping cough. These results were very encouraging.

As to Dr. Saunder's results with vaccinia, I had such a case in a child some years ago. There were twin babies, very young, some four or five months of age and who were constantly together; one of them contracted the disease and I felt sure the other one would get it. It soon began to cough, so I vaccinated it and it did not have pertussis. The first baby died of a terminal pneumonia.

THE NEW ENGLAND PEDIATRIC SOCIETY

The eighteenth meeting of the New England Pediatric Society was held at the Boston Medical Library on December 9, 1911.

Dr. John Lovett Morse in the chair. The following officers were elected for the ensuing year: President, James Marsh Jackson, M. D., Boston; Vice-President, Alexander C. Eastman, M. D., Springfield; Council, John Lovett Morse, M. D., Boston; Secretary and Treasurer, Fritz B. Talbot, M. D., Boston. The following papers were then read: 1, Dr. Wm. Pearce Coues, (*a*) A Case of Fragilitas Ossium With X-ray Plate; (*b*) Fracture and Dislocation of the Elbow, Report of a Case; (*c*) Radiographs of Interesting Fractures in Children.

Freud's Psychology, Abstract.—Dr. W. E. Paul read a paper entitled "Freud's Psychology as Applied to Children." After a brief description of the fundamental principles of the psychology of Freud and his colleagues as exhibited in the hysterias and other psychoneuroses, and with references to their application to many everyday happenings, the psychic origins in childhood were considered.

Psychotherapy and psychoanalysis were described and the importance of dreams and sexualty in the Freudian psychology were touched upon.

A knowledge of Freud's ideas will help the pediatrician to understand the child's subjective life and will serve him in giving advice for the psychopathic child.

Dr. Paul: Discussion at end of paper.

A knowledge of Freud's psychology is of value in comprehending the real origin of a child's actions and in estimating the influence on the child of events, episodes, and experiences to which he is subjected.

Dr. Coriat: Discussing Dr. Paul's paper.

I think that since Dr. Paul has given such a very interesting history of the application to children of the psycho-analytic method of Freud it might interest the society to hear a few of my experiences during the last few years with this method, particularly as revealing the sexual life of childhood and their mental conflicts. To employ the psycho-analytic method one must clearly understand a certain fundamental principle of Freud's psychology, namely, that no dreams or psychoneurotic symptoms are accidental or due to chance but are the result of antecedent experiences. Thus, the Freudian psychology becomes absolutely deterministic. The part of psychoanalysis that I find of the greatest value is the analysis of dreams, and in my psychoanalytic work I not only ask the patient to talk out freely what comes into the mind, but I get an account of dreams and from these I deduce what has happened in the patient's past life, because dreams are merely symbols or distortions of the underlying mental states. Dreams are the easiest means of getting at early life experiences, and by dream analysis one is enabled to trace out the very beginning of hysterical symptoms and obsessions back to the earliest life of childhood. This is done without suggesting to the patient any of the results desired. Therefore the results obtained are purely spontaneous products and their value and truth is shown by the absolute uniformity of results in various patients. The more I study the methods of Freud the more I am convinced of their soundness.

In some cases, if the condition is of long standing, the psychoanalysis, while it enables one to get at the suppressed condition, does not cure and other methods must be used after the psychoanalysis is completed. The reason for this is, that an automatism has been formed.

All dreams however, are not wish fulfillments, but a dream may represent a non-fulfillment of a wish, as well as fear, anxiety and other mental conflicts. In hysteria it is not so much the psychic trauma which produces the hysterical disturbances as the repression of that trauma. I find that the dreams offer the most rapid and convenient means of psychoanalysis. But since dreams are mere symbolisms, the analysis, of course, depends upon the unravelling of this dream symbolism, a technique which can only be acquired by long practice. It is the interpretation of these symbolisms rather than a free confession on the part of the patient which is at the basis of psychoanalytic treatment. Sexuality exists in the earliest years of childhood, and certainly the results of psychoanalysis have shown that a wide range of normal and abnormal sexuality may long antedate puberty.

Dr. Walton: Discussing Dr. Paul's paper.

Dr. Paul has presented the subject with characteristic fairness and clearness. Among a mass of postulates he has indicated certain truths. Meantime he pertinently questions if all the deductions drawn therefrom by Freud and his followers are logical.

It is true that our life is full of desires and memories which surge to the front only to meet the restraining influence happily termed, by Freud, the censor. It is true that many, if not all our morbid mental processes are outgrowths of past experience. It is true that the sexual element is prominnent in our development. It may perhaps be also true that our dreams are products of rudimentary and childish wishes, though I am inclined rather to view the dream as a series of old concepts newly assembled, their form and order depending more on our associative memories than on our wishes, repressed or unrepressed. But even granting such facts as these, I should query whether it follows that all morbid mental phenomena are the resultants of repression, whether there can be no neurosis without sexual taint, and whether the apparently innocuous dream always has a latent element and is symbolic of a wish. And right here, in connection with the difficulty the analyist is said to find in overcoming the patient's resistance, it seems pertinent to question whether the patient who relates his thoughts, dreams and experiences under Freudian urgency, always reliably fills his memory-gaps, or whether the physician may not sometimes be analyzing the imaginative. Take, for example, the memory of a dream. I have been in the habit for some time, following the Calkins method, of writing down for study, immediately on waking, such of my own dreams as are peculiarly vivid. There is a striking contrast between the disjointed fragments I can even then recall and some of the finished products of Freud's dream-book.

It may be true, as Dr. Paul states, that Freud did not establish his hypotheses before making his observations; at the same time it does not follow that these observations, however numerous, are adequate to establish the hypotheses. Certainly, if his deductions regarding dreams are a fair criterion, I am by no means convinced that his conclusions are always well drawn. The following child's dream from his book will suffice fairly to represent his mode of reasoning: A child sleeps in a large bed and dreams he is in a tight place. Freud explains this dream on the assumption that the child wishes he is large, a reasonable enough assumption to start from, though rather. inadequately based for close reasoning, namely, on Freud's assurance that all children have this wish. But Freud proceeds to analyze the dream as being so complete a realization of this wish that even the large bed is too small for the dreamer. This seems to me as fanciful as if an oculist were to claim that the dream resulted from eye-strain; indeed it would appeal more to me if a rhinologist should suggest it might result from adenoids.

I am likewise unable to follow the reasoning which leads to the conclusion that the dream of crawling through a narrow space has sexual significance. That such an example of the Freudian postulate is characteristic, not exceptional, I need only mention the dream cited by the previous speaker; his patient dreams of seeing a lifeboat and hears someone say there is no chance for her. It seems to me an unjustifiable jump from premise to conclusion to assume that the lifeboat is symbolic of her wish for children.

Coming to the practical application of the therapy, even suppose the claims of cure are justified—claims, by the way, shared with many cults we hardly feel inclined seriously to consider, does not the method simply cure symptoms instead of relieving the underlying trouble? For I do not agree that Freud finds the underlying trouble when he unearths the psychic trauma that started the morbid process. He here finds only the exciting cause of a particular train of symptoms, the underlying cause being, as Dr. Paul has intimated, the psychopathic makeup of the individual, that causes the memory of the trauma to persist, and, whether repressed or unrepressed, to become a factor in hysterical convulsion or other symptom, instead of being relegated into the bygone and replaced by healthier interests. Even suppose we can make this psychic trauma innocuous by catharsis, what is to prevent another trauma producing the same symptoms?

A better aim seems to me to strengthen the patient's resistance to all such psychic traumata. It appeals to me rather to train the patient to adopt a comparatively philosophical attitude, to learn to stand the disagreeable, and prepare to meet with equal mind the annoyances and dangers incident to life on this particular planet. To relieve in turn each fear on the part of a timorous child, or nervous patient, may only pave the way for other fears. I do not spend so much time in trying to convince the hypochondriac that palpitation is harmless as I do in trying to make him adopt the attitude of indifference if it is dangerous. If one has a phobia for thunderstorms I do not direct my efforts so much toward minimizing the danger of lightning as toward arousing the ambition to stand with equanimity the dangers incident to this life.

An essential of this method, which brings it into direct conflict with that of Freud, is the externalization of the interests and the replacement of morbid thought by healthy action. Nothing can be more antagonistic to this aim than having the patient, whether standing, sitting or lying down, dilate upon his psychic experiences and recall his dreams, nor need the practitioner of this, which appeals to me as the more rational method, apologize for omitting psychoanalysis, in the Freudian sense, from his therapeutic armamentarium.

In fact, the more I study the psychology and psychotherapy of Freud, the more I doubt if it offers adequate return for leaving the beaten track of logical deduction and established practice.

Dr. Wright showed the development of the mouth and teeth demonstrating his points on skulls. He showed the connection between erupting teeth and the adenoids and tonsils as well as the cervical lymph nodes. He also drew attention to the fact that gums which have been lanced once are penetrated by the teeth with more difficulty because of the formation of scar tissue.

Dr. Coues: Dr. Wright's paper.

I should like to say that the remarks of the speaker were extremely interesting and I agree with him in every way. The question of glands in the neck I think is very important. I think that almost all the enlarged glands in the neck in children come from irritation and that very few are at first tubercular, and that if they are tubercular they become so after the irritation. I think that almost all of the gland cases in children can be definitely traced to some such source of irritation as has been spoken of.

Dr. Simmons reported two cases of cerebral Hemorrhage in the new born with operation and recovery.

Dr. Paul: Discussion of Dr. Simmon's paper.

The class of cases Dr. Simmons has operated on receive an inestimable benefit by the removal of the blood and the clot. Such cases are the ones seen in later life with diplegia from the damage to the cortex due to the retained hemorrhage. It seems likely that evacuation of the blood will prevent or greatly limit permanent impairment.

Dr. Emmons: Dr. Simmon's paper.

I would like to ask Dr. Simmons if he attempted to wash out the clot, or if he thinks it is possible, with the single incisions used by him.

Dr. Simmons has probably stated in the unread part of his paper the essentials of diagnosis. In some of Cushing's cases no forceps were used and it seems to me important to emphasize that such cases may result from spontaneous labor of only moderate severity. The asphyxia at the time of birth is a very important factor, according to Cushing in determining cerebral hemorrhage.

Dr. Curry: Dr. Simmon's paper.

I saw a case about two years ago in a child who was then 22 months old which gave apparently a good history of cerebral hemorrhage of the new born, starting in when about three days old with left sided convulsions, these convulsions becoming general and the child having a number of them a day we decided to operate. Under the dura we found an area about the size of half an egg, filled with serous fluid, and drained it. This cyst we took for a degenerate blood clot. The child improved mentally, there were no more convulsions and it certainly seems as if the chance we took was worth while. I intended to say that we went in on the right side.

Dr. Swift: Dr. Simmon's paper.

If many of these operations are to be undertaken it would be a great help to some investigator later if at the time of operation exact data was tabulated as to location of any brain puncture or brain injury. Then when a series of these cases came to autopsy the carefully tabulated data would furnish splendid material for research that might add something of value to our present all too meagre knowledge of exact localization of brain lesions.

Dr. Coriat: Dr. Simmon's paper.

In a number of cases of epilepsy and in the spastic conditions of children. there have been histories of undoubted cerebral hemorrhages at birth, and I have not the slightest doubt that in the cases of epilepsy which develop later in life where we get a history of slight twitching and slight lapses of consciousness, that some process of the sort which Dr. Simmons has described has gone on and could probably be relieved by operation.

Dr. Talbot: Dr. Simmon's paper.

The interesting part of Dr. Simmon's paper from the point of view of the medical man, was the fact that in the first case he had one that was apparently a cerebral hemorrhage with the bulging fontanelle. In the second case the fontanelle was level and only admitted the tip of the little finger. The skull apparently was so compressed that the bones stuck together, and the fontanelle was smaller than normally. It probably would have bulged if it were physically possible to do so.

Dr. Simmoms:

The clot can be very easily removed by enlarging the opening and washing it out. Dr. Archibald has reported 74 autopsies on children between the years of one and three, with this condition. The hemorrhage is very apt to be extremely diffuse over the hemispheres and under the tentorium at the same time. I would also say that you could hardly get a knife through the sutures, they were so small. I do not know what the chances are of starting up a fresh hemorrhage. There was a hemorrhage in the second case, but I think that surely came from the scalp as the end of 24 hours when they changed the dressing. I am sorry that I had not time to read the few pages I skipped as they contained the method of making the diagnosis. I will say that these cases occur usually in primiparae as the result of difficult labor and the bones may become torn. It occurs in difficult labors and may occur in breech presentation as well as in head presentation, and may occur with or without forceps, usually comes on after 24 hours or it may be delayed three, four or five days even. May occur anywhere over the hemisphere and under the tentorium. The diagnosis is not difficult when localizing signs are present. When these are absent the diagnosis must be based on the cerebral compression and cerebral irritation; there is more or less cyanosis; the pulse may be full or rapid and weak. Of course, if you get spasticity or twitching there is localized irritation. The chief thing in the diagnosis is obtaining blood, usually by lumbar puncture, and the bulging fontanelle. We ought to cut through a large clot of blood and render the parts perfectly clean.

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RETROSPECT OF CURRENT PEDIATRIC LITERATURE.

Infectious Diseases

Under the Charge of

ST. GEO. T. GRINNAN, M. D.

Chief of Clinic in Practice of Medicine, Medical College of Virginia; Visiting Pediatrist, Memorial Hospital, Richmond, Va.

Should Sources or Routes of Infection be Chiefly Attacked?—Dr. W. H. Hill, director of the division of epidemiology, Minnesota State Board of Health, has done very good work in the suppression of infectious diseases. In the *Alumni Weekly*, April 3, 1911, he discusses the means of prevention of infectious diseases. The source of the disease being the infected person, either the person must be entirely isolated or all avenues of infection must be cut off from other persons.

As pointed out by Dr. Hill, "The important routes for most of our infectious diseases are those taken in ordinary life by the discharges of the nose and throat, but for typhoid fever and similar intestinal complaints (summer diarrhea, dysentery, cholera, etc.), those taken by the discharges of the bladder and bowels. For nose and throat discharges the specific routes are direct contact, mouth-spray, hands, flies; and things which contact mouth-spray, hands and flies may in turn infect—particularly things (food, milk, eating utensils, etc.), which then normally go into the mouths of others, or (towels, door knobs, etc.), are likely to be touched by hands which go into the mouths of others.

"For bowel and bladder discharges, the specific routes are the same, barring the direct contact and mouth-spray—and adding the chance of direct inflow of the discharges *en masse* into improperly guarded water supplies."

The practical question is to determine whether it is more economical to attempt to control infection through hands, flies, door knobs, towels, milk supplies and water supplies of the population rather than to attempt to control that small proportion of the population through whom alone these things become dangerous.

Dr. Hill very cleverly sums up the enormous avenues of infection by means of which diseases are carried from the patient to the newly infected. He calls attention to the fact that "In Minnesota 2,000,000 mouths (the chief ingress points for infection), are daily served by 4,000,000 hands (the chief conveyors of infection), with 6,000,000 meals (the chief meeting point of human discharges with human food, for the entrance of human mouths). From how many sources and through how many hands the food, milk, water, eating utensils, etc., pass before reaching their destination in the human mouth, it would be impossible to estimate. The mechanism to supervise these routes of infection properly would be staggering in its immensity and complexity, its expensiveness and its continuity.

"To guard these possible routes of infection not once or twice but daily, continuously, everywhere—how stupendous an undertaking!"

Each infected person infects one or more on an average; therefore, if only ten per cent. of infection were prevented by careful supervision ten years would see an annihilation of all infections supervised. The men and money available are not making the progress which could be made if our state legislature would take more interest in these matters. The education done in the public schools is already showing fruit in the minds of the young legislators.

The study of the extermination and protection of the house fly from excreta is a most important problem. Fly screens in the country have not become very general. Few kitchens in the country are provided with fly screens. In towns without sewerage the proper disposal of human excreta removes practically the only factor which makes the existence of flies a menace. In summing up the question put by Dr. Hill it would seem that it would be very necessary to attack both the source and the route of the infection.

Acute Poliomyelitis.—In a review of the recent literature on acute poliomyelitis, A. Friedlander (*Interstate Medical Journal*, December), calls attention to the rapid increase of the disease in this country in the last two or three years. This fact among others has stimulated investigation, and recently several important facts have been established which promise much toward the conquest of the disease. Workers in the Rockefeller Institute have succeeded in producing the disease in monkeys by the intracerebral injection of an emulsion made from the bodies of common house flies, which had been fed on portions of spinal cord obtained from a poliomyelitic monkey. It would seem that insects play a prominent part in the transmission of the disease. Kraus has produced active immunization of monkeys by repeated inoculation of small doses of virus over long periods of time, moreover definite antibodies have been demonstrated in the blood of animals so treated. Efforts to produce a serum of therapeutic value have, however, not been successful as yet. The subject of abortive attacks of the disease has recently attracted attention. According to Frost and other observers, such cases are probably very frequent, but on account of the mild type are unrecognized. These cases are often ambulant, and doubtless play a great role in the dissemination of the disease.

Diphtheria Anti-Toxin and Anaphylaxis.—D. John A. Roddy calls attention to the fact that occasional reports of the untoward effects caused by diphtheria anti-toxin have spread the belief that the administration of anti-toxin is attended with some danger (*New York Medical Journal*, Dec. 16, 1911.)

While the majority believe the danger is trivial and do not heed these reports a few consider the danger so great that they either do not use anti-toxin or only use it for very severe cases.

During the last few years there has been an increase in the mistrust of anti-toxin owing to the reports of the deaths of guinea pigs from horse serum. For a long time it has been known that an animal which is not injured by one injection of horse serum may be made very ill by a second injection of the same serum.

The explanation of this is that the first dose of the horse serum sensitized the guinea pig or rabbit so that the serum, which was inocuous to the animal before the first dose was given, is now so hypersensitive that a second dose of the same serum is very poisonous, or is apt to produce serious results.

The hypersusceptibility of the organism to the foreign serum or proteid which has been injected is called anaphylaxis. Anaphylaxis, however, is not manifest until after the second injection of the serum. After the first injection of horse serum there is an interval of several days to several months before the animal is sensitized. The length of the time which it takes to sensitize depends on the size of the dose, the smaller the dose the longer the time to sensitize.

The picture presented by the sensitized animal is very characteristic. The disturbance comes on immediately, usually in a few minutes, never more than an hour. The animal shows nervous excitement, the breathing becomes accelerated, he has convulsions, becomes paralyzed and in a few minutes the attack is over, death being the usual termination.

As pointed out by Dr. Roddy the frequency and almost regularity of the fatal results caused by the second injection of horse serum into lower animals is not a criterion of what will take place when the serum is used as a therapeutic measure for human beings.

The effects of a single and of multiple injections of the serum into man is quite different from what takes place when the serum is injected into the lower animal. The first dose injected into man does not sensitize or rarely sensitizes and the anaphylaxis resulting from the second injection of the serum produces manifestations quite different in character and rarely fatal.

Dr. Roddy notes that in more than eight thousand patients who received anti-toxin at different times anaphylaxis is shown to have occurred in less than one hundred and fifty cases—a very small percentage. Only two deaths could be attributed to the serum. When anaphylaxis did occur it was mild and would not alarm an experienced observer. "Marked rise in temperature, edema of the face, erythema, urticaria, painful joints, muscular twitching and general discomfort were the general symptoms." The symptoms were not sudden in onset, not violent as in the guinea pig.

The danger of anaphylaxis is insignificant as compared with diphtheria and can be almost entirely avoided by proper administration of the first dose.

The diphtheria bacillus produces not one, but several poisons, which are produced in different proportions in different cases.

If the first dose of anti-toxin is a large one, 30,000 to 40,000, all the different products of the diphtheria bacillus are anchored—toxines, toxons, toxiods etc., and there is no need of a second injection. When paralysis occurs it is due to lack of sufficient anti-toxin which could have been easily administered at the first dose.

Orthopedic Surgery

Under the Charge of

JAMES K. YOUNG, M. D.

Professor Orthopedic Surgery, Philadelphia Polyclinic, Clinical Professor Orthopedic Surgery, Woman's Med. College, Pa.

Certain Operative Procedures in the Paralysis of Children, with Special Reference to Poliomyelitis.—By Robert Jones, M. D., (*Brit. Med. Journal*, Dec. 9, 1911). The author first enumerates some fundamental principles, an observance of which is necessary for effective operations or mechanical treatment of paralysis. Paralysis may be due to destruction of the motor cells or to mechanical disability of a muscle. In acute poliomyelitis the motor cells generally suffer temporary injury rather than complete destruction. There is functional disability of a muscle if it fails to act when its governing motor cells are still living. The great cause of such disability is overstretching. If, after the acute symptoms of the disease have subsided, the weak muscles could be prevented from being overstretched, they would gradually regain their power as the motor cells would recover, and paralytic disabilities and deformities would be comparatively rare. But muscles may recover even after exhibiting reactions of degeneration; and if a muscle reacts to faradism it will certainly recover, though the contrary is not true.

The author freely illustrates how overstretching occurs in certain muscle or muscle groups, and how it results in functional disability which can often be corrected by continuous fixation of the muscles in a relaxed position. Thus the first stage of treatment is the correction of existing deformity. When the deformity has been corrected the limb should be kept immovable until ligaments and muscles and bones have become of normal length and shape. The treatment must be continuous as the slightest stretching of a muscle on the point of recovery disables it again.

The age of the patient is a guide to the mode of attacking the deformities. In small children, gradual correction is preferred. A child should be at least five years of age before tendon transplantation is performed, and at least ten years before arthrodesis is performed.

The methods of treatment of deformities are then discussed in the order in which they should be employed.

1. Reposition, manipulation, supports. For example, in valgus the inner side of the ankle should be raised above the outer side and maintained in this position by an iron support on outside of leg without joint at the ankle.
2. Division of contractions.
3. Removal of skin areas. For instance, in paralytic equinus a removal of redundant skin at the ankle seems to keep the foot at a right angle when the wound is healed.
4. Tendon transplantations. This should not be performed until at

least twelve months have been spent in trying to regenerate the paralyzed muscle. It may be performed (*a*) to reinforce a weak muscle, (*b*) to replace an inactive muscle, (*c*) to change the insertion of a muscle to increase its effect without altering its office, in splitting the tendo Achilles and transferring the inner half to the outside of the heel to correct an inverted heel and foot.

Wherever possible tendon should be transplanted to bone by passing it through a tunnel in the bone. When a tendon is passed from one part of the limb to another it should pass in as straight a line as possible and fat is the best medium for it to traverse. If possible, the sheath should be taken with the tendon. During recovery the tendon must not be unduly strained. Deformity should be corrected before the tendon is transferred.

5. Arthrodesis. The ankle and mid tarsal joints are best suited for this procedure, and next to these the shoulder. The author rarely performs it on the knee. It is quite unsuitable for hip, elbow and wrists.

6. Transplantation of nerves. The author believes this to be uncertain and disappointing.

Congenital Elevation of the Scapula.—Fairbank, (*Brit. Med. Jour.*, Dec. 9, 1911). The author prefers the above title to that of "Sprengels' deformity." He attributes it to errors in the segmentation of the mesoblastic tissues in the embryo during the period when the differentiation of the mesoblast is occurring. This, of course, does not explain the cause of the mesoblastic error; but it places all cases on a common foundation, for the most of these cases are associated with a skeletal deformity of spine, ribs, or other bones.

Rheumatism.—L. W. Ely, (*Colorado Medicine*, Dec., 1911). The author condemns the loose use of this term to describe almost any inflammatory process of the bones and joints and pains in all parts of the body that cannot be included under neuralgia or neurosis. He discusses the etiology, symptomatology, pathology and treatment of the various lesions often called rheumatism: joint tuberculosis, gonorrheal arthritis and penarthritis, acute infectious arthritis following the acute infectious, acute osteo-myelitis, bone and joint syphilis, arthritis deformans, sarcoma of bone near a joint, joint involvements in Still's disease, Ebarcot's joint, faulty union of fractures, especially near joints, flat-foot, back strain, etc., are often treated for "rheumatism."

Bier's Hyperemic Treatment.—By Waterhouse, (*Brit. Med. Jour.*, Dec. 16, 1911). The object of this form of treatment is to produce or increase a hyperemic state of the morbid area that the increased blood supply may aid the tissues in their fight against the invading micro-organisms. The author is unable to reconcile this method of treatment until the present accepted teaching concerning the physiology and pathology of inflammation, but he is convinced of its great value from his years of experience with it. Two fundamental rules must be observed. (1) During the application of the treatment it is of prime importance that the blood should continue to circulate freely throughout the part. When the constricting bondage is employed, this may be determined by the pulse, when a cupping glass or hot air is used, it may be determined by the color of the skin and by the sensations of the patient. (2) The treatment must be painless, or, at least, must lessen already existing pain. Furthermore, whenever pus is present, it must be evacuated by a small incision before the treatment is applied. In doubtful cases the presence of pus may be determined by the fact that the application of the constricting bandage or the cup causes or increases pain in the part.

The treatment secures (1) the arrest or mitigation of an infective process, (2) prevention of suppuration in many cases where it is threatened, (3) mitigation or relief of pain, (4) avoidance of operative treatment, or the necessity for less severe operation than otherwise, (5) saving of time in cases of suppuration and necrosis, *e. g.*, in carbuncle, (6) stimulation of the process of repair, as in delayed union of fractures.

The treatment may be applied by (1) the constricting bandage, (2) the suction cup, and (3) the hot air chamber or douche. The first method is by far the most useful and is indicated in (1) whitlows, (2) suppurative arthritis of upper or lower limbs, after an incision into the joint, (3) all varieties of pyogenic infections of the limbs, (4) tenosynovitis of tuberculous, pyogenic or gonococcic origin, (5) gonorrheal arthritis, (6) ununited fractures, (7) crushing injuries of hand and foot, (8) chilblains, (9) tuberculosis of knee and elbow and other parts distal to these.

The cupping glass acts only superficially, and can be applied only for short duration. For example, in tuberculous disease of the wrist, the bandage may be applied for sixteen to eighteen hours daily; while on a carbuncle of the back, the glass may be applied but an hour daily, and that only for five minutes at a time. It is suitable for (1) furuncles and carbuncles, (2) acute and chronic abscess after incision, (3) in sinuses and (4) in acute or chronic mastitis. The treatment must not cause pain.

The heated air chamber and the heated air douche are the least valuable of the three methods. In the former the temperature should be raised gradually and should never exceed 250 F. It is valuable in chronic arthritic and osteric affections, in promoting absorption of adhesions and exudates. The douche is often efficient in sciatica and occipital neuralgia and in cases of chronic osteitis of the superficial bones.

Iodized Phenol in the Treatment of Sinuses.—Dr. Cotes, (*Brit. Med. Jour.*, Dec. 12, 1911). The author states that for years he has treated long-standing as well as recent cases without a single failure or recurrence. He applies the iodized phenol on a probe dressed with cotton wool for a period of five minutes. Most cases require three or four applications at intervals of two or three weeks. This treatment was successful in old tuberculosis hip sinuses, as well as in small abscess socs.

Diagnostic Value of Von Pirquet's Cuti-Reaction in Children.—E. Meroz and B. Khalatoff, (*Rev*). *Med.de la Suisse rovu.*, Oct. 20, 1911) Abstr. in *Brit. Med. Jour.*, Dec. 12, 1911. The authors have investigated the value of this sign in children under 15 years of age and conclude that (1) the cuti-reaction is the simplest and most practical method for the early diagnosis of tuberculosis in children, (2) the value of a positive reaction is greater the younger the child, (3) in an infant, especially if breast-fed, a positive reaction is rare, (4) the more the child approaches adult life, the more positive reactions are obtained. With advancing age the diagnostic value of the test thus is diminished, (5) in every case in which a negative reaction is obtained, a second test should be made eight days after the first, (6) the reaction was positive in 52 per cent. of 337 children examined and in 90 per cent. of 159 children with certain or probable signs of tuberculosis, and in 10 per cent. of 178 cases without signs of the disease, (7) there is no relation between the intensity of the reaction and the extent of the tuberculous lesions, but the reaction tends to become feeble or absent in severe cases.

The Ophthalmo-Reaction of Calmette in the Early Diagnosis of Phithisis.—Dr. Hosford, (*The Lancet*, Oct. 14, 1911). The author reaches the following conclusions: (1) A negative result does not exclude tuberculosis, (2) he has never obtained a positive reaction except in true cases of the disease, (3) if a suspicious case fails to give a positive reaction, the test should be repeated three times at intervals of three weeks.

Tuberculous Osteomyelitis of the Synphysis Pubis.—F. J. Shepherd, (*Can. Med. Ass'n. Jour.*, Sept., 1911), abstr. in the *Lancet*, Oct. 14, 1911. The patient gave himself a wrench while lifting hay. The pain persisted for two days. Three weeks later it reappeared on walking or spreading his legs apart. Fourteen months later, on admission to the hospital, there was observed a mass, freely movable, half wav between the umbilicus and symphysis pubis and extending two and one-half inches to each side of the mid-line, apparently external to the muscles. After incision a large quantity of flaky odorless pus was evacuated and a large cavity was left in the symphysis containing a sequestrum and chessy matter. A second opening was made in the cavity, the sequestrum was removed. Bismuth paste was injected after several days. Healing was rapid and complete.

The Nomenclature of Spinal Deformities.—J. S. Killett Smith, (*The Lancet*, Oct. 14, 1911). In lateral curvature of the spine, the first stage is that of a lateral curve without rotation. It is a lateral derivation, not a scelrosis. The spine can be straightened to normal by posture. In the second stage, rotation and further lateral derivation of the spine are accommodated by the mobility of the thorax, due to the elasticity of the ribs and then cartilages. The spine may be straightened to some extent by posture; but some deformity remains, due to muscular and ligamentous shortening. The third stage begins when the limit of the mobility of the thorax has been reached, so that the ribs yield to the pressure and become permanently bent, and the deformity becomes fixed. The alteration produced by posture is now inconsiderable and the radical changes of ribs and spine are palpable. The last two stages are true scelrosis. The author suggests following the method of the Berlin school and classifying lateral curvature as of grades 1, 2 and 3.

Diseases of the Skin and Uro-Genital System

Under the Charge of

EBERHARD WILLIAM DITTRICH, M. D.

Instructor of Diseases of the Skin, New York Post Graduate School and Hospital. Dermatologist, German Odd Fellows' Home and Orphan Asylum; Dermatologist Northwestern Dispensary; Ass't Surgeon, New York German Hospital Dispensary, Urology.

Fatal Results From Intravenous Injections of "606."—Prof. Gaucher, Paris, (*La Tribune Medicale*, January, 1912). In the face of the immense enthusiasm, displayed everywhere in favor of dioxy-diamido-arsenobenzol dichlorhydride or 606 it may be of interest to hear some voices also from the other side of the house. Dr. Gaucher reports a fatal case, due to the intravenous administration of "606." X., aged nineteen years, entered the St. Louis Hospital (service de Beurmann), September 15, 1911. He was suffering from a hard chancre on the frenum, accompanied by a painless double adenitis.

His hereditary and personal history gives no evidence of any pathological condition. His parents are both living and have never been sick. The patient arrived in Paris two months ago; he had been brought up in the country and had always enjoyed excellent health, and was a well-built, normal individual. An examination of the heart, blood vessels, lungs, nervous system, did not show anything abnormal. The urine contained no albumin.

On September 18, an intravenous injection of 60 centigrammes of "606" was administered through a prominent vein in the left arm with the usual aseptic precautions, and without the patient feeling any immediate malaise. A quarter of an hour after this injection, the patient was taken with vertigo, sensation of heat and during the day vomited abundantly. His temperature was 38.2 degrees C. in the evening.

The next day, September 19th, everything was all right again. The patient did not vomit any more, nor complain of any symptoms of intolerance. His temperature was 37.5 degrees C., he was up and the appetite was as good as usual. September 20th, this condition was maintained.

September the 21st, under the same conditions as the first time, a second intravenous injection of "606" was given (same solution was used to make an injection on another patient who did not feel any worse from it.) The second injection seemed to be well borne at first, but in the afternoon the patient was taken with vertigo, headache and with painful and greenish vomiting; the evening temperature going up to 38.6 degrees C.

September 22nd, the patient again vomited in the night; he complained of epigastric pains, which he attributed to the effort to vomit.

A clinical examination of the stomach and other regions did not show anything abnormal. The temperature in the morning was 38.5 degrees C., in the evening 38.3 degrees C.

September 23rd, in the morning the patient again had a vomiting spell and complained of epigastric pain; his temperature was 37.6 degrees C.

The same day at two o'clock in the afternoon (during his sleep) he gave out a cry which his neighbors compared to the barking of a dog. This was followed with tonic and then with chronic contractions and epileptoid incoherent movements. He bit his tongue and the mouth was covered with white froth, there was no emission of urine or fecal matter. At four o'clock he passed into a comatose state, with a loss of sensibility of the reflexes and became unconscious. He made some incoherent movements but without agitation. His pupils were dilated and fixed. His face was pale and covered with sweat; his respiration was stertorous; the pulse became rapid, strong and regular (100 pulsations a minute), temperature 37.3 degrees C.

These same phenomena persisted, although injections of caffeine, camphor oil and artificial serum were given. Ventouses were applied and 500 cc. of blood were withdrawn. The patient passed away September 24th, at four o'clock in the morning.

Chronic Relapsing Gonorrhea and Its Cure.—Dr. C. M. Whitney, Boston, (*Interstate Medical Journal*). The author distinguishes two forms of chronic gonorrhea. The chronic continuous and the relapsing form. The former can easily be seen while the latter does not show any symptoms what ever, neither discharge nor shreds. With no apparent reason, however, in the latter case the discharge returns in an acute manner, sometimes years after the initial infection.

In order to effect a cure we must diagnose correctly and I think that everyone will agree in this with the author. The use of the urethroscope in such cases, of course is imperative and will reveal a good deal, but we also may have to resort in cases like this to the cysto-urethroscope. In my experience the history given by the patient even if it were ever so carefully taken can only be of a relative value.

The treatment must be varied and should be regulated by the character of the conditions found. We are justified in calling the patient cured if after repeated examinations massage and close observation, every discharge is found to be negative, we must however in a case like this not forget to cure the condition which we have found to be responsible for the relapse in the course of our careful and thorough urethroscopic examinations.

Contagious Affections of the Skin in Preparatory Schools and Colleges.—Dr. John T. Bowen, Boston, (*Boston Medical and Surgical Journal*, December, 1911). Many skin affections are seen at the age of puberty. Acne and seborhea in their various forms, various types of eczema, especially those dependent on the development and alteration of the nervous mechanism, and psoriasis which at times asserts itself during the period of adolescence The acute exanthemata, most common in childhood, are liable to be delayed to the age of fourteen and over, thereby forming a menace as to the production of epidemics in boarding schools.

Besides these there is a number of purely cutaneous diseases, some of which are communicable, which may occur in preparatory schools and among the younger members of colleges.

These latter diseases mentioned by the author in this connection, are impetigo contagiosa, scabies, ringworm, marginated dermatitis of the thighs and axillae, alopecia areata and verrucae.

Impetigo contagiosa, a skin disease which is superficial in character, but very contagious, as its name implies, is the first one of his series. As its spreading can be prevented quite easily by paying close attention to the media that are responsible for its transmission, it is well to know that the affection could be traced in some instances to a sweater, worn previously by another person, in other cases it was propagated by the interchange of clothing, worn close to the body. Some cases could be traced to transmission from those returning from camping expeditions and in some other instances it was due to shaving.

The treatment sublata causa consisted of bathing twice a day with warm water and soap with the subsequent application of an ointment containing ten per cent. boric acid and five per cent. sulphur in cases that were generalized, while a five per cent. of ammoniated mercury ointment proved successful in isolated and less extensive patches.

Scabies, an affection which is usually communicated either by sleeping with the infected person or in a bed that has been previously occupied by one. The number of cases that occurred in these institutions was small and could be directly traced to camping expeditions. The usual treatment was successful in all cases. The author emphasizes the necessity of disinfecting all clothing that has come in close contact with the skin. (I would also suggest to have powdered sulphur sprinkled on the bedsheets during the period of active treatment and their subsequent thorough disinfection.—E. W. D.)

Ringworm of the scalp is rare and only a few cases of ringworm of the non-hairy parts has been observed. Very rarely it occurred in the bearded region. The author, however, describes a "marginated dermatitis" of the thighs and the axillae which occurs often especially in members of crews and foot ball squads. It resembles the so-called eczema marginatum to a great extent. It is easily converted into an acute ezcema by too energetic treatment. Boric acid in powder and as a lotion have proved to obtain the best effects. Cotton should be interposed between the fold of skin as in the groin.

Although alopecia areata is not considered to be contagious in the strict sense of the word, there seems to be some communicability of this affection judging from the way it sometimes appears to affect children that live in close community. The author puts special stress on the advisability of frequent examinations of the female scalp in schools and institutions.

Besides the frequent occurence of warts on the hands and the fingers, which had developed when the students returned from their autumn vacation, the author's attention was directed particularly to the development of wart on plantar surfaces in boys and young adults. In his opinion this is probably due to the fact that these boys and girls are in the habit of being on their feet a great deal, in playing tennis and other athletic games.

Genito-Urinary and Dermatological Axioms. Dr. Noah E. Aronstam, Detroit Mich. (*Indianopolis Medical Journal*, November 1911.)

1. Do not be too positive about the exact nature of a venereal ulcer; the primary period of incubation cannot always be relied upon, and what may seem primarily to be a "soft chancer," may eventually be followed by the constitutional symptoms of syphilis.

2. Salvarsan is not a specific for syphilis; nor is it advisable to dismiss a patient after an injection of it as "cured." Keep the patient under observation and strict surveilance; make repeated Wassermann tests, and always supplement the salvarsan injections by the administration of mercury.

3. Do not regard every case of palmar papulo-squamous dermatosis as syphilitic. It may be but a manifestation of psoriasis and search should be instituted elsewhere on the body, especially on the extensor surfaces of the extremities and behind the ears for the presence of similar lesions. Eczema *fissum et squamosum* may likewise attack the palmar aspects of the hands,

4. Itching of the pubic region should always excite suspicion. It is not always possible to discover the pediculi. Then look for the ova with a magnifying glass. If nothing can be found, do not fail to examine the urine for sugar.

5. Urethral fistula, the result of suppuration of the urethral glands and crypts at the fossa navicularis, is apt to prove protracted and stubborn. A probe moistened with a mixture of equal parts of tr. of iodine and carbolic acid inserted in the fistulous tract may lead to cicatrization and adhesions of the walls and final closure of the sinus. If we fail to affect a cure in this manner, incision is the only measure left.

6. Herpes may attack the mucous membrane of the urethra. Tingling and itching within the first two inches of the canal are subjective symptoms. There may also be servere pain on micturition but very little discharge. The urethroscope will show grouped areas with intervening healthy spaces. The lesions are grouped abrasions. Do not interfere and give alkalines. The process will come to a standstill within one week.

7. High frequency currents are of beneficial influence in seborrhea sicca with loss of hair. This may be enhanced by useing a stimulating hair otion.

8. Do not neglect diet in skin diseases. Hydrocarbons and carbohydrates should be excluded for some time. Fruit acids and vegetables are highly recommended, (except strawberries, rhubarb and tomatoes). Alcoholic beverages and coffee are to be tabooed.

9. An excellent lubricant for sounds with a slight stimulating action:

℞ Argent. Nitratis	0.18
Bals. Peru	2.0
Petrolati Albi	30.0

10. In Acne and Rosacea the knife should be freely used. After incising and scarifying use Bier's cup. Use them hot compresses and the following ointment at night:

℞ Acid. Salicyl.	0.6
Sulphur. Praec.	4.0
Petrol. Albi	30.0

ft. Ungt.

The Beginning of Mind in the New-Born.—Peterson, (*Bull. Lying-in Hosp. of N. Y.*, December, 1910), reports the results of investigations made in the New York Lying-in Hospital to determine the degree of mentality present in the new-born infant. From these studies he concludes that sensibility to light is present in most infants at birth, even when premature. The optic nerve is ready to receive impressions before birth. The same is true of hearing, as many normal children react to sound on the first day of life, and also a considerable number of those prematurely born. Children react to stimulation of the gustatory nerve at birth, and often before the period of normal gestation. This is also true of the olfactory nerve. There is every reason to believe that cutaneous sensibility, muscular sense, sense of motion, and of position are present, not only at birth, but for some time before. Thirst hunger is experienced on the first day, although hunger for food is not usually apparent until the first or second day. There are good reasons for believing that a new-born child comes into the world with a small store of experiences and appreciated feelings and shadowy consciousness. The child's body transmits light readily and must also transmit sound, and the child must have heard *in utero* the sound of the mother's body and also its own heart beat. The gustatory nerve is stimulated by swallowing amniotic fluid. Touch and muscular sense must be developed by fetal movements, which occur as early as the sixteenth week of pregnancy, and may be so violent as to give pain to the mother. Muscular activity and frequent contact of the fetal body with the uterine walls must develop a sense of equilibrium and relation to space. The material basis of consciousness is prepared long before birth. There is no perceptible difference in the reaction of colored and white or between twins.

BOOK REVIEWS

Science in the Kitchen. By Ella Eaton Kellogg. A Scientific Treatise on Food Substances and their Dietetic Properties, together with a practical explanation of the principles of Healthful Cookery. A thousand Choice, Palatable, and Wholesome Recipes.
Revised and enlarged edition. Battle Creek Mich.: Good Health Publishing Co., 1910. Price, $3.00.

" He who receives his friends without giving personal care to the preparation of the repast is not worthy of having friends."

Mrs. Kellogg must have had the above quotation in mind when preparing the manuscript for her book, "Science in the Kitchen," which has many good qualities as a guide in the kitchen and, moreover, it is written in such a way that what she says carries a degree of conviction that is not often found in books of this nature. Instead of merely mentioning recipes, the authoress really tells a story of the culinary art that is well worth reading on account of her clear observations on fruits, breadstuffs and bread-making, and other kindred subjects. And again, she does not limit herself to her own preferences in the matter of the preparation of food, but takes so large a survey of the subject that nationalism that bane of most cookery books.

This work goes deeply into the science and chemistry of the preparation of foods, as well as the food value of cereals, with various recipes for their preparation. Breadstuffs and bread making receives careful consideration at the hands of the authoress. Fruits are considered from their chemical constituents and their value as nutrients. Much space is given to the digestibility of fruits and likewise to vegetables. Soups and their superiority receive the consideration due them. Breakfast dishes likewise come in for due consideration. Considerable space is given to desserts and much is said pro and con concerning same. Milk, cream, butter and eggs, their composition and food value is given considerable attention. Nuts and nut foods and their nutritive value is gone into at great length. Lastly, food for the sick, the care and treatment and a knowledge of dietetics as used in the sick room is well written.

This work will serve as a reliable guide in culinary practice, either for the sick room, the home, club or any other place, and as such we have great pleasure in commending the work.

It is bound in handsome buckram binding, printed on good paper and will be a source of joy to the house-keeper.

Blair's Pocket Therapeutics: A Practitioner's Handbook of Medical Treatment. By Thomas S. Blair, M.D., Neurologist to Harrisburg, Pa., Hospital; Author of "A System of Public Hygiene," "Blairs' Practitioner's Handbook of Materia Medica," Member of Harrisburg Academy of Medicines, American Medical Association, etc.; 373 pages, special Bible paper; bound in limp leather; price $2.00 Published by The Medical Council Co., Forty-second and Chestnut streets, Phila., Pa.

This book gives a condensed intelligent discussion of the best methods of treatment, based on scientific principles, with a well-tried, reliable formula occasionally to illustrate the application of the principles. The author gives many modes of treatment far in advance of the present text-books. An ingenious method of indicating relative dosage is to print the name of the drug in CAPITAL LETTERS for large doses, in ordinary type for medium doses, and in *italics* for small doses. An exhaustive "Table of Large, Medium and Small Doses" is given in the book.

The diseases treated are divided into related groups, each group occupying a chapter, according to the following classification (a copious alphabetical index provides for instant reference to any particular disease).

The work closses with an Appendix which gives very many necessary tables for quick reference, followed by an exhaustive Table of Doses, closing with a General Index.

In order to get all this within the compass of a book for the pocket, a very thin, tough Bible paper has been used, so that it is really a much larger book than it looks.

This book will be a useful pocket companion to the physician in his daily work.

The Diseases of Infancy and Childhood for the use of students and practitioners, by L. Emmett Holt, M.D., LL.D., Professor of Diseases of Children, College of Physicians and Surgeons, New York; Attending Physician, Babies and Foundling Hospitals, New York. Assisted by John Howland, A.B., M.D., Professor of Diseases of Children, Washington University, St. Louis; Late Associate in Diseases of Children, College of Physicians and Surgeons, New York. Sixth edition, with two hundred and forty illustrations, including eight colored plates. New York and London. D. Appleton & Company, 1911.

This sixth edition of Holt's well-known book reflects further credit upon the authors because so many sections have been rewritten. This has been made necessary by the rather rapid advances which have been made during the last two or three years, particularly along the line of the infectious dieases of children. Among many other lines there has also been a less marked advancement, and these have received due recognition, and while these advances have been noted, there has been a corresponding elimination of much of the older material, so that the whole volume is not needlessly enlarged. In most instances this curtailment has not taken materially from the value of the abbreviated chapters.

The greater part of the new material added in this revision will be found in the chapters upon Nutrition and Infant Feeding, Infant Mortality, Intestinal Intoxication, Pyloric Stenosis, Appendicitis, Acute Peritonitis, Endocarditis and Pericarditis, Cerebro-spinal and other forms of Acute Meningitis, Acute Poliomyelitis, Hereditary Syphilis and Tuberculosis. Many of the old illustrations have been omited and numbers of others have been replaced by newer and better ones. In all, 36 new illustrations have been introduced, including 12 radiographs.

This work reflects the mature experience of a keen observer of the best and latest knowledge in pediatrics. It is well balanced in every way, both as a text book for the student and as a reference book for the general practitioner, taking rank with the best thought in pediatrics of any language and any tongue and is not surpassed by any other treatise on the subject. This volume is an example of all that is best in pediatric knowledge and should have a place on the library table of every physician who would be abreast with the times and who desires to do his very best for sick infants and children.

The Taylor Pocket Case Record. By J. J. Taylor, M. D., 252 pages, tough bond paper; red limp leather: $1.00. Published by the Medical Council Co., Forty-second and Chestnut streets, Philadelphia, Pa.

The object of this book is to encourage more accurate observation and study of cases by supplying a convenient form for a condensed record of each important case, in pocket size so that the practitioner can have it always with him and so arranged that the necessary data can be written down in the briefest possible time—preferably while the examination is actually being made.

Thoroughness of examination is encouraged by means of a Syllabus, detailing all the points that should be considered in each case.

The blank for the first thorough examination, diagnosis and treatment is followed by spaces for sixteen subsequent visits.

The book provides for 120 cases.

Heredity in Relation to Eugienics. By Charles Benedict Davenport. Carnegie Institution of Washington, Director, Departmen of Experimental Evolution, Cold Spring Harbor, Long Island, N. Y.; Secretary of the Eugenics Section American Breeders Association. with 175 illustrations and diagrams, and complete bibliography and index. 8vo, 298 pp. $2.00 net. Henry Holt & Company, 34 West 33rd Street, New York.

According to the author, recent advances in our knowledge of heredity have revolutionized the methods of agriculturalists in improving domesticated plants and animals. It has been clearly recognized that this new knowledge has a far reaching influence upon certain problems of human society. In his work he attempts to explain heredity in relation to eugenics as well as the specific problem relating to the transmission of various human traits and susceptibilities to diseases.

Eugenics treats of inborn, inherited capacities and tendences. Modern heredity explains how these tendencies get into the children and assist young persons to select consorts so as to have a sound offspring. The book tells what is known of the inheritance of various diseases and other characteristics; it discusses the origin of feeble-mindedness, its vast social consequences, and its elimination; it considers American families, the part they have played in history and the proof they furnished of the all-importance of "blood."

This subject is yet in its infancy, as it were, as a vast amount of investigation into the laws of the inheritance of human traits, will be required before it will be possible to give definite instructions as to fit and suitable marriage mating. The social problem will continue to remain for a time, at least, an unsolved problem, but this volume will admirably serve to awaken the reader to the responsibility and the scope of the science of eugenics and as such we commend it.

Essentials of Laboratory Diagnosis—containing the latest practical methods designed for students and practitioners. By Francis Ashley Faught, M. D., Director of the Laboratory of the Department of Clinical Medicine, and Assistant to the Professor of Clinical Medicine Medico-Chirurgical College, etc., Philadelphia, Pa. Fully illustrated with Indican Scale in colors. Eight full-page plates and numerous engravings in the text. Crown Octavo. 335 pages. Flexible cloth. Rounded corners. $2.00 net. F. A. Davis Co., 1914–1916 Cherry Street, Philadelphia, Pa.

This work is designed especially for practitioners and students of medicine and the author has endeavored to present his subject in as concise a manner as possible. This book should be in the possession of every medical student and most practicing physicians. It contains, as its title implies, the essentials, and only the essentials of those procedures necessary to clinical laboratory diagnosis. The peculiar value of this book resides in the concise and practical manner in which each subject is treated and each test described, and the entire absence of all superfluous data.

This book is particularly well suited, not only to the medical student in the preparation of cases assigned to him for study, but also to practicing physicians, who have grasped the necessity of establishing a small laboratory in connection with every-day work.

This volume closes with an appendix, arranged so as to furnish a working basis for the equipment of a clinical laboratory, at the same time affording reference for the preparation of stains, reagents, etc., It is a practical little work and well suited, not only for the medical student in the preparation of cases assigned him for study, but also for practicing physicians, who are progressive enough to establish a small laboratory in connection with every-day work.

Life, Death and Immortality, by William Hannah Thomson, M.D., LL.D. Consulting Physician to Roosevelt Hospital and to the Manhattan State Hospital for the Insane, New York City; Member of the Academy of Medicine; Late President of the Association of American Physicians, etc., etc.; Author of "Brain and Personality," etc. Price $1.00 net. New York and London, Funk & Wagnalls Company, 1911.

Dr. William H. Thomson has been an active medical practitioner in the City of New York for the past half century. During the last decade he became widely known out-side his profession as an author of several books, more or less nearly related to medicine, noticeably among which is "Brain and Personality." A contribution to current discussion of the nature and destiny of man, and perhaps the most widely known. His latest work, the book under discussion, "Life, Death and Immortality" is received by the reviewer and considered as a notable contribution to the study of man's destiny. The author approaches the subject from a scientific basis and much attention will be attracted to the fact that his conclusions point directly to immortality. The present book is a compilation of a series of brief essays (chapters) written as one man might write a letter in a fairly long letter, giving his reviews on these infinite subjects.

Hand-Book of Electro-Therapeutics—By William James Dugan, M. D., Lecturer on Electro-Therapeutics in Jefferson Medical College, Philadelphia; Physician-in-charge of Electro-Therapeutic Department and Assistant in the Out-Patient Neurological Department of Jefferson Hospital, Philadelphia; Fellow of the American Electro-Therapeutic Association, etc. Thoroughly Illustrated. Crown Octavo. 240 pages. Extra Flexible Cloth. Rounded Corners. $2.00 net. F. A. Davis Co., 1914–1916 Cherry Street, Philadelphia, Pa.

Electro–Therapeutices has passed from the Domain of the charlatan to that of the regular practitioner and the author has been very careful in not making any absurd claims for electricity or impossible cures.

This volume is intended for students and physicians who know little or nothing about electricity and electrical apparatus, how to use the apparatus after it has been purchased, when to use electricity in medicine, and, equally important, when not to use it.

Every student of medicine should, at graduation have a clear idea of the subject of electricity and this little volume will aid him very much in attaining that end, and as such we commend it.

PEDIATRICS

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EDITORIAL

WHAT WILL BE THE END OF THE AMERICAN REPUBLIC IF AMERICAN WOMEN REFUSE TO BECOME MOTHERS?

The majority of American women of today look upon maternity as undignified and a menace to a wife's liberty. They consider it an unwelcome invocation of duty and responsilibity. So strong is this unhealthy sentiment prevalent in the rural districts, as well as in the Metropolitan centers that the gynecologist is eagerly sought and urged to do an operation which makes maternity impossible. If conception has occurred then these women seek a physician, devoid of moral obligation, and urge him to perform an operation which will rid her of the responsibility of motherhood.

The individual woman is autocrat of her own decisions, but when she takes the vows of the marriage law, however broad or simple its words, there goes with this vow an injunction of motherhood. The woman who unites herself in marriage to a man and then refuses to be mother to his children unless there are moral, physical or hereditary laws—which cannot in justice to the unborn be propogated in the human race, has obtained a husband, a man to pay her bills, and to support and protect her through the subterfuge and methods of a common cheat. The man and woman unwilling to be father and mother to children are both unworthy of a place in Society and should not marry. Let their taints, whether of blood, or body or morals die with their own soul's death. This is what a true philosopher would say was justice to the human race, and a poet would call it heroism. Justice or heroism demand the same strength within the ego's soul.

The American home is no longer a palace of love in the valley of peace, music and laughter. The successful American man and his wife have apartments in some fashionable hotel or boarding house. In summer the wife goes to the mountains or seashore for a change of air and the husband stays home and works for the money to pay his wife's summer bills, and create his pleasure with free thought and license. Every law of earth and heaven whispers maternity—creation. Every religion away back into the chaos of time, down to the Christian one of to-day has made motherhood divine, sacred. The Hebrews of to-day crown a mother with the glory of man's greatest honor. The Catholic faith looks upon motherhood as the divine blessing of God. The strong family ties of love and loyalty of the Hebrew race is the secret of their wonderful prosperity and strength in every community in which they live. It is the link which binds all Catholic families so closely together that no adversity, no trials, no shame can shadow their allegiance.

The repudiation of maternity in a wife is the outcry of the selfishness of her own heart and nature. She wishes to receive all and give nothing, not even the milk of her breast, in payment for a babe's sweet angel-lit smile, a cherub's dimpled cheek, and the soft curves of its little body, nestling in all the faith that comes with it from God.

A woman who denies herself the kiss of her own babe's lips, does not realize what a pearl of everchanging beauty, what an infallible elixir of joy, of pride, of happiness she has allowed selfishness to chase away.

RACE SUICIDE MEANS FUTURE BARBARISM.

The history of the great men and women of the United States demonstrate that they were all of large families. They lived not in the constant thought of self, but in the intermingling of thoughts, the concessions. the mutual considerations and giving which are inevitable in large families. The main purpose of the family is to reproduce the race and care for the child so that he may pass on to his children knowledge, morality, idealism and the cultivation that man has achieved in the past. The whole purpose of the family is frustrated when the family is childless.

The United States is the greatest and most powerful republic the world has ever seen, because men and women during the past century married with the impulses to be fathers and mothers to boys and girls, with no protest against nature: Whether in the barren hills of New England or on the frontiers of the Western States, these men and woman built a hut or a house and called it "home," and lived within it with the holy reverence and love that such men and women give to the tabernacle in which their children are born.

Now all is changed. Several decades ago large families, 6, 8, 10 or 12 children were common and oft repeated, but to-day such numbers are not in evidence—small families, 2, 3 or 5, the latter figure very large for the average American family. Why is this? Only one reason, women are learning how to avoid maternity. The rich American man's wife scorns to be a mother. She leaves the responsibility of motherhood to her French maid, her Irish seamstress, or her German washerwoman. And when their sons are noted men, the American barren wife declares with contempt their humble origin. The barren American wives, so overwhelming in number, are fit ciphers of Society. They represent nothing but their husband's ability to pay their bills. It has been said "that nature is always right." It is nature's wise law to let foolish, fanatic, self-sterile, selfish women end with their own death, their unenviable heredity of mind; but the question arises, "What is to become of the American Republic if America ceases to have American families and American homes?"

There is but one answer: "The foreigner, with his large family of boys and girls, with his prejudices and reverence for royalty, will govern the United States with the right of franchise legislative and judicial laws."

RESTRICTION IN BIRTH RATE.

It is an established fact, and one which should make every true patriotic American shudder, that the day is fast approaching when we will awaken to the realization that we are maintaining American institutions, and the human race of to-day, to be governed by half civilized, indigent, ignorant, barbarous brutalized, fiendish foreigners,—the scum and scourge of civilization, which are being admitted to our country as citizens,—and not the people that have inherited the wealth, the morals, the knowledge and the advantages of our American institutions and civilzation. The human race of the future will not be the descendants of the founders and patriots of this country that we now regard as superior. A great many fashionable women, suffragettes and club fiends are hugging the delusive idea that if every family has two children, the race will be maintained, but it wont. Every family must have an average of six children to maintain the human race, for it is a fact, alarming as it is, that 20 per cent. of all infants born, die before the end of the first year and that 50 per cent. die before the end of the fifth year, therefore, a family of less than that four will not maintain the race. The latest report of the Health Department of the City of New York divides the birth rate of various races in the City, and a study of this report is interesting. The Italians, Russian Jews, Poles and Slavs are doing their part obeying the Divine injunction "to multiply and replenish" the rest are not. The well-to-do American families in this and other large cities show an average birth rate of 2 and less, while the immigrants will have a birth rate of from 6 to 12. The families among the better classes "so called" are pretty nearly failures, so far as the Divine injunction is concerned,—they are not producing and bringing up children. Whenever and wherever the birth rate of a people is declining, you will find that the population is straining every nerve to strengthen its economic basis, to have more comfort, wealth, enjoyment and especially to have a higher social standing. This strenuous struggle for social prestige is found in all grades and classes of our population. In the people of the most exclusive sets and all the way down the scale they will be found striving to climb a rung in the social ladder *just one* beyond their reach. This struggle is a direct antagonism to the birth rate. Card parties, afternoon teas, clubs and suffragette topics not to speak of such minor things as dress and millinery occupy the time and thought of the modern wife more than that of the function which she was ordained to fulfill, and such women usually make their choice and sacrifice their children—for the things just mentioned. We must refresh our memory with the calamity that happened to the French when they began—sacrificing their children—disobeying the Divine injunction.

It is perfectly plain to the American student of eugenics that the race of the future is not to consist of the posterity of the people that are doing things to-day and who have done things in the past. What are we patriotic Americans working so desperately hard to attain—to make something of this great country, because our progenitors left it as an inheritance to us, but with the present picture before our mind's eye, it looks as if in a few generations our grand children will not have a country as things are going now and it does seem that we are doing things for the children of those we despise, those who are vastly inferior to us in every respect.

THE WAIL OF THE BARREN WOMAN

Barren wives sooner or later, moan out their own folly in sighs, pains, and aches, and often tears of regret. When the frills of a tailor made gown, the rustle of silken petticoats, the chattering of women at 5 o'clock teas, the dirge notes of would-be singers at musicales fail to enthuse the senses, then must come to the barren wife the thought that "may be" the sweet cooing of a babe would be sweeter music than the clang of piano out of tune, or a tenor with a cracked voice. When she looks at the rest of the women like herself at the eating trough of a boarding house, hotel or restaurant, her heart whispers, "Would it not have been better, nobler in my duty as a wife, as a woman, to have been a mother, and in a home, however modest, made a fireside of peace and content, comfort and happiness for myself, my husband, my children?"

When a barren woman reaches these conditions sometimes it is too late. The May tide which carried into her lap the bright dancing love-lit waves of promised happiness was thrown back into the sea of fashion with the foolish cry, "I want no children."

The woman before or after marriage, who makes such a statement; must realize that she is untrue to every law of justice to herself, physically, socially, and the impulses of home and family, and untrue to the God who created her to be a mother.

The woman who is a mother, whether she has one or ten children, in equal conditions of life and surroundings, is invariably a healthier, happier, more cheerful woman than the woman whose cry has been, "I want no children."

The woman with a large family may not have the amount of money nor the desire to lead a society woman's life, but she is always better contented with her life. The kisses of her sons and daughters are sweeter to her than all the operatic airs ever written, or all the high teas ever given. American women must be mothers. Their dignity and honor pleads it. Their old age beseeches it. The honor, strength and existence of the grand old republic of the United States demands it.

PEDIATRICS

ORIGINAL ARTICLES

EMPYEMA IN INFANTS.*

BY

FRANCIS HUBER, M. D.

New York.

Your chairman has honored me with the request to give an informal talk upon some topic of interest to you, as general practitioners. With due appreciation of the honor, I will say that the compliment in my estimation demands more than a mere informal talk. A subject of interest, because of its frequent occurrence, is empyema. I therefore take the opportunity to discuss somewhat briefly the subject of "Empyema in Infants."

The high mortality, the difficulity of diagnosis in many instances, and the frequent coexistence of pneumonia and other complications as a part of the morbid process, lend interest to the study of the subject at this age.

Cases of empyema are commom in the lower eastern section of New York. Why this should be the case, it is impossible to answer. Even the laity are aware of its frequency and its relation to pneumonia. In fact, when a diagnosis of pneumonia is made in a child, no doubt it has occurred to many of of you, the physicain is not infrequently asked, is it not possible to prevent matter forming? If the pneumonia lasts longer than ten days, the physician is questioned as to the possible existence of pus.

Any abnormality in the course of or following a pneumonia ought to put us on our guard, as to the possible presence of pus.

Salicylates have been employed in combatting infections. It is problematic if the remedy has any decided influence over any organism except that of acute articular rheumatism.

In sero fibrinous pleurisy good results have been observed, though it does not appear certain, that purulent pleurisy can be prevented by its use.

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*Read at a meeting of "The Physician's Club," December 27, 1911.

Cushing, Crowe, Morris and others have shown that after the administration of urotropin, formaldehyde quickly appears in the blood and secretions of the body. One of our Boston colleagues was inclined to believe that by its use empyema may possibly be prevented.

Dr. F. E. Shattuck (N.Y. Med. Jour. 24, 1911.) states that the lethal action of the urotropin on the typhoid bacillus in urine, the general permeation of the body by the drug, and the general delicacy of the pneumococcus, suggested that possibly empyema might wholly or partly be prevented as a sequel of pneumonia by the routine administration of the drug. The method was in no sense a preventive in the cases in which it was employed. It was interesting to note that neither in the Mass. Gen. Hospital nor the Presbyterian Hospital did pericarditis develop in the patient taking urotropin, although it was noted in 4 to 5 per cent at the Mass. Gen. Hospital and in 1.5 per cent at the Presbyterian, in those not taking the drug. Furthermore the Mass. Hospital records showed that otitis media occurred in about four per cent of the non-urotropin cases, in no instance in the urotropin series.

Anders states, "Experience dictates that quinine has a beneficial influence on inflamed mucous membranes, and it posseses a limited value at least, in the pleuritis of pneumonia, both as a supporting agency and in mitigating the intensity of the inflammatory process."

Morgenroth and Levy, (Berlin klin. Woch. Aug 21, 1911.) believe that bacteria are in reality as amenable to a therapia sterilisans magna as are certain kinds of protozoa. The power of quinine over the latter is well known, and this drug has been used extensively in various bacteriogenic diseases.

A quinine derivative has been produced which possesses undoubted prophylactic and curative influences over laboratory pneumococcus infection in mice. Further study may possibly lead to the discovery of a drug having similar power over the organism in man. In the findings they see the possibility of a successful chemo-therapy of bacterial diseases.

Thus neither clinal experience nor extended scientific experiments and research work justify the belief that we are at yresent, in a position to prevent the occurrence of empyema.

During the first week or two of infancy, empyemata are not infrequently met with as a secondary condition, one of the lesions of a pyemic process, due to infections originating in the umbilicus, buccal cavity or integument.

The diagnosis, in these cases, is usually made at the autopsy. Aside from the pyemic condition, empyema is rare in very early life, during the first month. In the discussion of Jacobi's case of sepsis in a newly born infant (*Trans.Rm.Sed.Boc.*17*th Session.*) the writer reported a case occurring in a boy 5 weeks of age, due to a staphylococcus infection. Recovery followed simple incision and drainage.

Bovaird in an article on "Empyema in Infants" (*Med. News* Dec. 23, 1899) reports 82 cases which came to autopsy; of this number 69 were under two years of age. The youngest patient was two months and 19 days; 11 were under six months; 40 occurred in children between six months and one year and 18 between the ages of one and two years.

In my study of 86 cases (*Arch. Ped.* Nov. 1911) 54 were two years of age and under. We will refer to this a little later.

Because of the early age and a number of unusual features, the following case is reported somewhat in detail, though no explanation can be offered for the peculiar blood count, nor can we, in the absence of blood cultures and a bacteriological examination of the pus, throw any light upon the etiology.

Issie G. eight weeks old, born in New York, admitted to the hosiptal April 5, 1909.

Mother and father alive and well. No history of tuberculosis or any other constitutional disorder in the family. The personal history is unimportant. Easy non instrumental delivery. The child was breast fed for four weeks, then bottle fed (one part milk and two parts water every two hours). Bowels offensive and green. Urination normal.

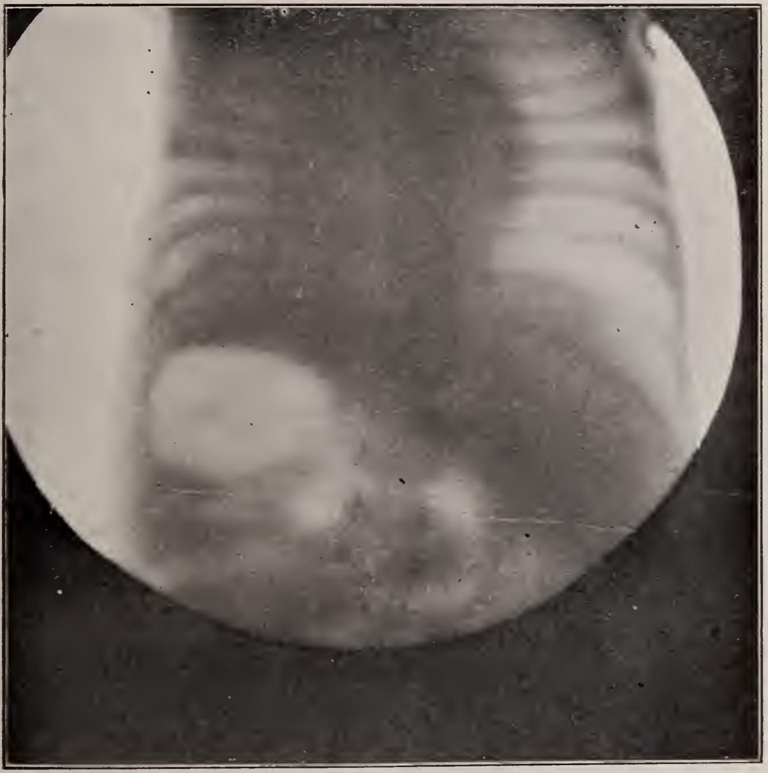
The present illness is of one week's duration, During this period restlessness, dyspnea, fever, and a slight cough were noted. When admitted to the hospital was said to be much better as the cough was moderate and dyspnea less. Temp. 98.8, R. 34, P. 128.

At the time of admission the general condition was fair. The patient was fairly nourished and developed. Moderate dyspnea. No cyanosis or edema present.

Ears, nose and mastoid negative. Pupils equal and reacted in a normal manner. Tongue in fair condition. Throat negative. Glands not englarged.

Chest marked lateral curvature of the spine to the right side. Expansion limited on left side. Left side markedly retracted.

Lungs.—Right exaggerated puerile breathing; percussion hyperresonant. Left. Tympanitic note anteriorly and posteriorly almost from apex to base. Marked sense of resistance to the percussing finger. Very gentle percussion failed to reveal a flat note, though it must be conceded that the results of percussion were not satisfactory because of the restlessness and cries of the infant. Breath sounds feeble, at times distant bronchial in type. Fine crepitant rales audible at base posteriorly.



Heart.—Right border somewhat further to the right than one would expect under normal conditions. No murmurs or other abnormality. Abdomen soft, though somewhat distended. Liver and spleen negative.

Blood count April 6th.

Leukocytosis 18,000.

Small Lymphocytes, 62 per cent; Large, 3 per cent.

Polynuclears, 35 per cent.

Hemoglobin, 80 per cent.

In view of the tender age of the infant, the peculiar blood count, the marked degree of retraction of the affected side, though the physical signs pointed to an effusion, a radiographic plate was taken to eliminate a possible congenital condition. The diagnosis of an effusion into the left pleura with some consolidation at the left apex was made out. As seen in the photo there is some displacement of the heart to the right and marked compensatory emphysema of the right lung. The lateral curvature is also evident. Exploratory puncture revealed pus.

In a clinical study of empyema (*Arch. Ped.* Mar. 1911) the author found 86 cases among a total of 967 children, ten years of age and under—a proportion of a little over 11 per cent. Of this number, 33 were 15 months of age and under, nearly 40 per cent.

TABLE OF CASES OF EMPYEMA.

Age.	Male.	Female.	Right.	Left.	Recovery.	Death.	Improved.	Incision.	Resection.	Secondary Operation.	Remarks.
8 W'ks.	1			1							Refused operation.
11 W'ks.	1		1			1		1			
4 Mos.	1					1		1		1	
4½ Mos.	1		1			1		1			
5 Mos.	2	1	3		2		1	3			
6 Mos.		2	2			2		2			
7 Mos.	3		1	2		3		3			
8 Mos.	5		4	1	2	3		5			
9 Mos.	2	1	2	1	2	1		2	1	1	
10 Mos.	2	1	1	1	1	2		2			1 puncture and drainage.
11 Mos.	1		1			1		1			
1 Yr.	2	1	2	1	2	1		2	1		
14 Mos.	1	1	1	1	2		1	2			
15 Mos.	2	2	3	1	3	1		3	1	1	
Total.	24	9	20	12	14	17	2	28	3	1	

The analysis of the table shows, that 24 boys were affected and only nine girls; the right side was involved in 20 cases, the left in only one (in one instance the history fails to state the side affected.)

Thirty-two cases were operated upon and in one, however, puncture and drainage was resorted to. In 28 simple incision with insertion of drainage tube was practised, and in three resection of one rib with drainage was adopted. The mortality was high, 17 died. A closer study of the fatal cases reveals many interesting data. Thus in one year, of the six deaths, four were males and two females. In five the right side was involved, the left in one. In two there was a complicating erysipelas, two had extensive bronchopneumonia (one with abscess of the lung), one suffered from a severe gastro-enteritis as a complication and one succumbed to toxemia, two days after admission.

The following year the cases were more numerous and more severe, as there were 11 deaths. Ten males and one female; in eight the right side was involved and the left in three. In two there was bronchopneumonia with abscess of lung; another had a lateral pharyngeal abscess and erysipelas of face; one died 24 hours after admission. In the other sepsis, bronchopneumonia, erysipelas, staphylococcus; auroeus infections or diphtheria contributed to the fatal ending. Thus the mortality was greater in males and in cases in which the right side was involved.

The fatality in the infant is due not so much to a failure to recognize the effusion, but rather to the severe grade of infection and the various complications

Thus we frequently find extensive bilateral pneumonia, pericardial involvement, minute single or multiple abscesses in the lungs, gangrene and parenchymatous degeneration of the heart, liver and kidneys.

The difficulty of diagnosis in infants, as Bovaird remarks, is dependent upon the small size of the chest, the close relations of the lung on one side to the solid liver, on the other to the hollow stomach and the inability to secure the assistance of the patient in the study of the voice and breathing.

Such little patients as a rule in the acute stage are extremely restless, the breathing is superficial and the frequent presence of pneumonia with empyema adds to the difficulty As a large proportion occur in rachitic children, the action of the diaphragm is interferred with by the tympanites and as a result is pressed upwards by the gas in the intestines.

Constitutional signs. If the case be seen early, within the first week, cough, dyspnea and temperature more or less elevated with profound systemic disturbances are noted. Later the temperature may be low, the fall taking place by lysis or crisis, though the pulse continues accelerated and the little patient appears to be fairly comfortable with relatively little dsypnea, unless disturbed. In other cases the temperature may continue high or irregular in type.

Edema about the eyes is frequently present. Local edema of the affected side is more frequently met with in the young. Diarrhoea is common. A noteworthy feature in the later cases is the want of correspondence between the general condition and the physical signs in the thorax.

If the pericardium is involved to any extent the distress is profound and the head is retracted, the child lying on the affected side. In cases seen three or four weeks after the onset there may be emaciation, pallor and depression, though on the other some are fairly comfortable with relatively large effusions. The symptoms are by no means characteristic or distinctive.

In discussing the physical signs, I would lay stress upon the board-like feel, the sense of resistance to the percussing fingers, the flatness, displaced heart and possibly diminished or absent breathing and voice.

It must not be forgotten that the breathimg may be loud and bronchial over a purulent effusion; usually it is distant. Percussion for reasons evident should be gentle, not forcible. The displacement of the heart is greater in left sided effusions because of the normal position of the heart to the left.

"Displacement of the heart is a most important sign in the differential diagnosis. The position of the visible impulse is to be noted, whether to the right or left of the sternum; if behind the bone it cannot be appreciated. At times, however, the impulse may be evident just below the ensiform cartilage. Palpation may aid when the impulse cannot be made out by inspection. In many instances however auscultation must be resorted to in order to locate the apex beat. Contrary to the general impression the heart is not rotated or swung from its point of attachment at the root of the great vessels, but is moved bodily across to the oppositite sides, its long axis maintaining about its normal relation to the long axis of the body. Thus the visible and palpable cardiac impulse does not represent the situation of the apex of the heart, but of the upper and anterior portion of the right ventricle" (Walter R. James, *Osler's Modern Medicine* Vol. iii Par. 874.)

The highly instructive and interesting observations, made by Dr. I. S. Hirsch in the fluoroscopic examinations and "X-Ray" studies of our cases, strongly confirm the above statement.

Fluoroscopic examinations give positive and valuable information. With the aid of the screen we frequently find unsuspected pulmonary consolidation in addition to the effusion.

Do not expect to find the affected side more prominent with wider intercostal spaces.

"In cases of large effusions and of long standing, this may be true, In the greater number the intercostal spaces, on the contrary, are narrowed and the side is retracted. Even in the chronic cases the absorption of the liquid portion leads to retraction of the affected side.

"Diminished negative pressure within the thorax may account for the lessesed normal depression of the intercostal spaces. Because of the pain, the affected side is favored. The approximation of the ribs in the early stages may be attributed to the spasm of the intercostals, analogous to the reflex muscular traction observed in joint disease. At the same due time a marked resistance to pressure is met with in the interspaces. Narrowing of the intercostal spaces and scoliosis with the convexity toward the unaffected side, have been observed even with large effusions, three to four weeks from the onset of the trouble. Compensatory emphysema of the other lung further tends to accentuate the disproportion. The X-Ray studies emphazise these points in a striking manner.

"The physical signs, though well known, merit extended and careful investigation and, should doubt remain as to the diagnosis of complicating pleurisy, an exploratory puncture should be undertaken without delay. It is particualrly true of the pleuritis which is secondary to pneumonia in children that while the withdrawn fluid may be serous at first, it soon becomes purulent. The transition, however, is not to be ascribed to a secondary invader but to the action of the pneumococcus."(Anders J. A. M. A. Oct. 7, 1911.)

In the study of the 86 cases referred to above, it was stated; encysted empyema is not infrequent. The maintanance of one position during the development of the process influences the location of the effusion. If the patient be kept in a dorsal decubitus, the fluid is usually confined to the lateral and posterior regions of the affected pleura, if lying on the side a corresponding limitation may be observed.

Engelbach and Carmen (A. J. M. S. Dec. 1911) in a series of X-Ray studies of Serofibrinous Pleuritis in their conclusion state, "the location of the fluid in the serofibrinous pleurisy is variable. In a great majority of the cases it is more or less in the vertical position in the upright chest. The location is probably dependent upon the most constant position assumed by the patient during the acute stage of the disease. Adhesions forming at this time encapsulate the effusion, fixing it permanently in this portion of the chest."

To judge from an extended experience in hospital practice, it is extremely difficult to make a distinction between empyema as a complication and empyema as a sequela.

Primary cases are relatively infrequent, the largest number of purulent pleurisies are to be considered as secondary to pneumonia. In a small number, there is a preceding history of measles, scarlet fever, influenza or other infectious disease.

The medical treatment varies with the individual case. The indications must be met as they arise. Particular attention is to be paid to the gastro-intestinal tract and tympanites should be prevented by a judicious diet, low irrigations or the insertion of a catheter into the rectum at intervals. Good hygenic and sanitary surroundings are essential. Borderline cases with turbid or slightly purulent effusions are benefitted by medicinal means; pus cases are surgical.

Aspiration may be necessary in tiding a case over danger points, when the amount of fluid is large, the general condition poor or the constitutional symptoms severe.

In dealing with either serofibrinous pleuritis or empyema occurring secondary to pneumonia an expectant method(unless tapping be urgently needed) is to be adopted until the crisis is passed.

Upon several occasions the condition of the case in the first week, was so desperate, that aside from an exploratory puncture no other operative interference seemed warranted. Under general symptomatic treatment, when the crisis was passed, more radical measures were adopted with success.

In the infant simple incision with drainage usually suffices. Narcosis is not necessary.

RHEUMATISM IN CHILDREN.*

BY

A. M. GOSSAGE, M. D.

Physician to Out-Patients, Westminster Hospital, and East London Hospital for Children.

London, Eng.

The Manifestations of the Infection.

Rheumatism may be regarded as an infective disease due to the invasion and development in the patient's body of a special micro-organism. Liability to be attacked varies with age; the disease is almost unknown in infancy, is commonest between the fourth and the twentieth year, and diminishes in frequency with advancing life. The manifestations of the infection differ, also, in a striking fashion according to age. In adults there tends to be an acute illness, with fever, sweating, and joint pains, followed by a period of perfect health; whilst in childhood the infection is prone to be a chronic one with subacute exacerbations, and even at the time of these acuter disturbances the symptoms are more varied than is the case with those who have passed the period of growth. Joint pains, indeed, occur at some time or other in most cases even in the very young, but in these cases they are nearly always slight, and may never be complained of. Pains elsewhere than in the joints, such as "growing pains" in the limbs or a stiff neck, are almost as frequent a complaint, and are also, unfortunately, as vague and fleeting in character. Feverish attacks, too, are usually associated with other rheumatic manifestations, but the fever is nearly always moderate, and causes but little trouble to the child. Profuse sweating, however, which is such a conspicuous feature of the disease in adults, is quite absent in children, and rheumatic hyperpyrexia is almost unknown. On the other hand, some aspects of rheumatism are more common in childhood, giving the varied character to the compliant. Of these some, such as tonsillitis, or erythema multiforme, are acute and transitory, but may be accompained or followed by the graver forms which attack the heart. Other manifestations pursue a chronic course, as is the case with the subcutaneous nodules and some of the nervous phenomena.

It is probably correct, as is suggested by Garrod, to regard the manifestations as being produced in two ways: (1) the local effects resulting from the focal growth of the organism, and (2) the general action of the toxins, manufactured by the organism, after they have been absorbed into the blood. To the first class would belong the subcutaneous nodules and the similar nodules which are the cause of cardiac inflammation, and to the second the fever, the fleeting joint pains and inflammation, the erythematous rashes, the dilation of the heart, and probably the nervous symptoms. Thus on the whole in adults the manifestations seem to be mainly due to toxemia, while in children they are largely focal. A feasible explanation of this difference would be afforded by the hypothesis that in adults the chief site of the multiplication of the organism and the manufacture of the toxins is in the blood itself, while in children this occurs in focal lesions outside the blood stream. Where the toxins have to be absorbed into the circulation from outside they would naturally be less in amount, and would produce less violent symptoms.

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*The Practitioner.

Subcutaneous Nodules.

Taking the phenomena rather more in detail a commencement may be made with the subcutaneous nodules, since these afford the typical example of the local response to rheumatic infection. An individual nodule lasts about two months, and gradually disappears, but nodules tend to come out in successive crops, fresh ones appearing before the old ones fade, and in this way there may be a continuous exhibition over many months or even several years. Each nodule consists of a collection of fibro-plastic cells in the subcutaneous tissue which, with recession of the growth, are converted into fibrous tissue. These small tumors are situated as a rule over bony prominences, and are not attached to the subjacent bone except where the subcutaneous tissue comes into very close relation with the periosteum, as over the skull and patella. Genuine periosteal growths are found in rheumatism but only very rarely; these are known as rheumatic nodes, and are generally attached somewhere over the shaft of a long bone.

Nodules may also be found over the sheaths of tendons, especially the flexor tendons in front of the wrists. Their seats of selection are the elbows and knuckles, and if not found in these situations they are seldom discovered elsewhere. They vary in bulk from something that can only just be recognised up to the size of a pea, and in number from a single specimen to many hundreds. They are usually associated with grave cardiac mischief, and the cardiac involvement naturally tends to be more serious the more numerous and the larger they are. Occasionally, however, nodules have been discovered where no cardiac lesion could be recognized. While they are present they prove the persistance of rheumatic infection, and therefore there is always a probability of fresh invasion of the heart. It is on this account that they have to be regarded as of such unfavorable import in prognosis.

Cardiac Complication of Rheumatism.

Toxic.—For the future welfare of the patient the cardiac complications are of pre-eminent importance. The heart may be involved in two ways: either it may itself be the seat of rheumatic infection, or its muscle may be poisoned by the toxins manufactured by the rheumatic organism whatever the site of its growth. Poynton and Paine have described a micrococcus as occurring in the lesions of rheumatism and the blood of rheumatic patients, and their observations have been confirmed by others. Although the casual relationship of this organism to the disease cannot yet be regarded as absolutely proved, there is considerable evidence in its favour. It is of interest, therefore, to note that this microbe produces in its growth formic acid, and formic acid is known to cause a marked loss of tone in cardiac muscle, leading to the general dilatation of the chambers of the heart. Some dilatation of the heart is almost invariably found during an attack of rheumatism, and this must be due to the action of a toxin on the muscle, since the inflammatory rheumatic lesions are too local to account for a general dilatation. With the cessation of toxin production the cardiac muscle may completely recover its tone, or on the other hand some loss of tone may be permanent and the resulting dilatation may be an important factor in the production of a subsequent cardiac failure. The rheumatic toxin attacks a still more important property of the cardiac muscle, viz., contractility. The diminution of this is shown not only by weakened cardiac action but also by shortening or even disappearance of the first sound. In some cases, especially in already damaged hearts, a more or less rapid death may be caused by the damage to the contractile power of the muscle.

Fortunately, however, the effect on contractility is less marked than is that on tonicity, though the recovery of this function may also be incomplete. The power of the muscle cells to conduct stimuli may be also adversely affected, but noticeable alterations of this property have not been recorded in children.

Inflammatory Lesions.—Myocarditis.— Inflammatory lesions of the heart may develope in the pericardium, mesocardium, or endocardium. It is probable that the mesocardium is affected whenever either of the other layers is attacked, but since the direct evidence of this is derived only from the more severe cases that die during an acute stage this view cannot be taken as proved. The lesions found in the heart are similar in structure to be subcutaneous nodules, but their duration is probably less prolonged. In the mesocardium they are found chiefly in the walls of the left ventricle, especially at the upper part near the mitral and aortic valves. The toxins manufactured in these lesions would have a local action on the muscle fibres adjacent to them as well as a general action after their absorption into the circulation. The cardiac muscle is arranged so as to form sphincters around the mitral and tricuspid valves, and with loss of tone of the fibres forming these sphincters the valvular orifices may become sufficiently large to allow of regurgitation. From the distribution of the inflammatory lesions the mitral sphincter would be specially prone to be affected by the toxins which are produced so near it, and the mitral regurgitant murmur so often heard early in rheumatism is almost certainly due to loss of tone in the sphincter secondary to myocarditis. Lesions are also found near the aortic valve, but there is here no sphincter, and so the orifice is not liable to enlargement from a local loss of muscle tone.

Nodular Lesions in Pericarditis.—In pericarditis the nodular lesions may be confined to a small area or scattered all over the pericardium. The inflammation leads to roughening of the surface, giving rise to the typical rub and later to a greater or less effusion of clear fluid. It is difficult to say how far any symptoms that occur are due directly to the pericardial inflammation. The subjacent muscle is always involved in the inflammation, and tends also to be poisoned by the toxins produced. Hence to a large extent the impairment of the circulation and the dyspenœa depend on the condition of the muscle. Still an effusion of any size must hamper the heart. It is probably never necessary to tap the pericardium; indeed, in some cases where the operation has been deemed advisable the physical signs have been due to dilated heart and not to pericardial effusion. In cases of pericarditis the muscle is usually severely affected, and hence the recognition of the condition becomes a grave factor in prognosis. The subsequent adhesions, too, form an added difficulty for a damaged heart.

Nodular Lesions in Endocarditis.—In endocarditis the nodules are subendothelial, and are situated mostly at the upper part of the left ventricle, and especially in the mitral valve. The swellings project into the cardiac cavity and become covered with fibrin from the blood, thus forming the vegetations which afford the macroscopic evidence of inflammation of the endocardium. It is quite impossible that these small lesions can have any local influence in the production of either obstruction or incompetence of the valve at the time when they are first formed. As the nodules grow older they tend to be converted into fibrous tissue, and this on contraction leads to puckering and deformity of the cusps allowing regurgitation. Inflamed cusps may adhere, and so cause obstruction, but some of the valvular deformity is also a result of myocardial inflammation which may lead to constriction of the orifice from cicatrical contraction around it. Loss of tone in the sphincter may on the other hand remain and lead to a permanent enlargement of the opening and consequent incompetence. It is important to appreciate that endocarditis has no share in the production of the physical signs by which rheumatism of the heart is diagnosed, and up to the present time we know of no symptoms which are caused by it during its acute stage except, possibly, some slight fever. Alterations of rhythm are given in text books as a sign, but these may be due to so many causes as to be unreliable, and if they accompany endocarditis they are probably not due to it but to an associated inflammation or intoxication of the myocardium. For the recognition of endocarditis, then, we are dependent on the symptoms and physical signs of pericarditis, and mesocarditis, since it is probable, though not absolutely certain, that these are usually accompanied by inflammation of the inner layer. Whether endocarditis can occur alone without myocardial inflammation is uncertain, but it is by no means uncommon to find a patient who has shown no signs of cardiac involvement during an attack of rheumatism some months later developing the signs of permanent valvular disease. Hence it is essential to wait several months after an attack before pronouncing that the heart has escaped.

The Hearts of Children, How Affected.—Proportionately the hearts of children escape much less frequently than do those of adults, but permanent cardiac disease is by no means an invariable sequela of rheumatism in the child. Even when there has been during the attack definite signs of involvement of the heart, such as dilatation, a murmur, or even a pericardial rub, these may all disappear and the heart remains quite sound. A permanent murmur does not necessarily imply a defective heart: many people enjoy excellent health in spite of a stenosed or incompetent valve. The amount of damage to the health of the muscle fibres is much more important for the future prognosis than the developement of a valvular defect. As a rule the damage done by a single attack of rheumatism is slight, but unfortunately attacks are seldom single, and this is especially the case with children in whom, too, the infection is often chronic. Each succeeding attack tends to add to the cardiac damage.

Synopsis of the Signs of Rheumatism.—The signs of rheumatism of the heart need recapitulation. Pericarditis is shown by a rub and effusion of fluid. Its recognition has an added importance, because it is always associated with myocarditis and endocarditis. Endocarditis has itself no symptoms and no physical signs, and its presence can be merely inferred from the signs of inflammation elsewhere. The evidence of myocarditis consists in the developement of a systolic murmur at the apex due to loss of tone in the mitral sphincter. Unfortunately there is no sign of fresh myocarditis where the mitral valve is already incompetent. Sometimes a diastolic murmur is heard at the apex early in rheumatism; this is probably caused, as has been pointed out by Carey Coombs, by dilatation of the left ventricle without any enlargement of the mitral orifice, when the suction action of the ventricle drawing blood through a relatively narrow orifice would produce a "fluid vein" and so a bruit. This murmur, therefore, should be a sign rather of muscular poisoning than of inflammation. Further manifestations of the action of the toxins on the cardiac muscle are dilatation of the chambers and weakness of the first sound.

Before leaving the cardiac complications it is necessary to point out that injured valves are liable to be attacked by various organisms giving rise to the different types of ulcerative endocarditis. According to Poynton and Paine the micrococcus that causes rheumatism can itself give rise to chronic ulceration of the valves.

Pleurisy and Pneumonia as Complications.

Pleurisy and pneumonia are rare complications but are met with rather more frequently in children than in adults.

Nervous Phenomena of Rheumatism.

The nervous phenomena of rheumatism are second only in importance to those connected with the heart and they have the peculiarity that they are almost confined to children. It is a common event to find that a child during an attack of rheumatism becomes emotional, alternating between unreasonable laughter and tears; the more marked cases show also distinct mental impairment. This mental and emotional change is exactly like what is invariable in chorea. Naturally with these children, just as with those who have chorea, there is a history of neurosis in other members of the family. It has also been said that nervous children often have rheumatic parents and themselves show a special liability to rheumatism. The association of chorea and rheumatism is well known, but it is not yet decided whether chorea is to be regarded as always a rheumatic manifestation. If cases of chorea be followed out with care about 60 to 70 per cent. will be found either to have, to have had, or later to develop symptoms of rheumatism. On the other hand, many cases of chorea start very definitely from overwork or a fright, and it is difficult to imagine this as connected with a microbic infection such as rheumatism is now regarded to be. Nevertheless, every case of chorea should be regarded as a potential case of rheumatism, and preventive treatment should be carried out to ward off a rheumatic attack just as if the child had had a bout of undoubted rheumatism. Other nervous phenomena, such as talking in sleep, somnambulism and night-terrors are said to be commoner in rheumatic children, and these children are also liable to headache, epigastric pain, and lientric diarrhea.

Diagnosis.

The diagnosis of rheumatism is not in itself a matter of difficulty if the pleomorphic character of the complaint is borne in mind. The slight and vague nature of the symptoms, however, frequently leads the parents or friends of the child to disregard them, so that the physician is not consulted until the heart has already been irretrievably damaged. Sore throats and growing pains require serious attention and the childish sufferer should be frequently examined for the development of nodules or a cardiac murmur. Subcutaneous nodules are the most definite evidence of rheumatism, but they only occur in about a third of the cases, and then often after the heart has already been severely attacked. Still a careful search will frequently reveal their presence where they would otherwise be missed and so clinch the diagnosis. The joint pains are fleeting, so that a persistent affection of a single joint is almost certain to be due to another cause, such as tubercle, gonorrhœa, osteomyelitis or syphilis. Still very rarely rheumatic arthritis may persist for months, and in these cases nodules have probably arisen in the joint.

The varied symptoms of rheumatism in the child are not usually all present at the same time but tend to come in successive attacks. At one time there may be tonsillitis, at another joint pains, at a third chorea, and at a fourth an eruption of nodules; cardiac inflammation or poisoning may be combined with any of these. An attack may even be confined to a carditis, implicating pericardium, mesocardium, or endocardium.

Treatment.

Treatment cannot be comenced too early, so that too much importance cannot be attached to an early diagnosis. It is not known how the orginism gains access to the child's body, as there is at present no reason to suspect direct transference of infection from one person to another. There are, however, certain conditions which are recognized as increasing the susceptibility to infection. To begin with, there is distinct family predisposition; so that the brothers, sisters and children of one who has had rheumatism should receive special care. Again, those whith red hair are found amongst rheumatic patients in disproportionately large numbers compared to their occurrence in the general population. The special liability of the nervous child has been already pointed out and should be kept in view. Rheumatism is commoner in damp, low-laying localities than on high, dry soils, and an attack often directly follows exposure to cold and damp. Hence any child who from his personal peculiarities or family history is recognized as predisposed to the disease should live on high ground where the soil is dry and the climate equable, and special care should be taken that he is well clothed with woolen garments next the skin both in winter and summer and that he is not exposed to wet feet. These rules apply, of course, with still more force to children who have already had an attack of rheumatism, since an attack affords no protection (or only a very short one) against future infection.

An acute attack with joint pains and fever can quickly be relieved by the salicylates (*e.g.*, gr. x of sodium salicylate to a child of 10 every four hours) and, if necessary, a small dose of opium before the salicylate has had time to act. As a rule, however, acute attacks are the exception in children under the age of 10, both fever and pain being only of moderate intensity. Both these symptoms are probably toxic in origin and their removal by no means implies that the infective process is at an end. There is no convincing evidence that we can influence the growth of micro-organisms of the bacterial class by any pharmaceutical preparation that it is possible to administer by the mouth, in contradistinction to the amenity to drug treatment of the higher organisms which cause such diseases as malaria and syphilis.

So far the evidence is in favor of rheumatism being a bacterial disease, and so we should not expect any drug to exert a specific action on its causative agent. While, however, many physicians do not regard salicylic acid as doing more than relieving symptoms, others of great experience, and notably Lees, consider that it has a specific action causing the disappearance of nodules from the subcutaneous tissue and from the heart, and acting as a preventive of further attacks. To the writer the evidence of its specific action on rheumatic inflammation does not appear conclusive, but to him it does seem to have some influence in warding off recurrences. Hence he considers that it should be administered over several weeks after an attack, because it appears that the heart is more likely to be affected during the more acute exacerbations than in the intervals, and it is to the prevention of implication of the heart that treatment should mainly be directed. If the specific action of the drug be believed in, it must be given in very large doses, 120 to 150 grains a day, and in doing this there is always danger of poisoning the patient. The poisonous action of salicylic acid and its salts depends on their neutralizing the alkali of the blood, giving rise to "acidosis," and this may be avoided by giving sufficient alkali with the drug. As a rule, according to Lees, double the quantity of bicarbonate of soda to that of sodium salicylate is enough, but the best guide is to give sufficient to keep the urine alkaline.

It is also essential to see that the bowels act daily. The symptoms of poisoning are panting respiration, a feeling of "air hunger," and drowsiness, like the commencement of diabetic coma, and any sign of these phenomena calls for the instant cessation of the drug. Some patients are very susceptible to the salicylates so that it is advisable to add the alkali even when only small doses are being administered. A derivative of salicylic acid, aspirin, has been regarded as non-toxic, but cases of air hunger have resulted from its administration, and it has the disadvantage that sodium bicarbonate cannot be added to as it is insoluble.

The manifestations of rheumatism in the child are usually inflammation or poisoning of the heart. As explained, it is just possible that we may prevent the heart being involved by energetic treatment with the salicylates. It is, however, often very difficult to say during an attack whether the heart has been affected or not, so that we should regard for purposes of treatment every case of rheumatism in the child as a case of cardiac rheumatism, whether or not there are signs of cardiac implication, such as pericarditis, a murmur, or dilatation. It is improbable that the cardiac condition can be influenced by any drug, but a very considerable number of cases recover. To give the best chance of recovery it is essential that the heart should be spared all unnecessary work; hence the child should be kept in bed for two to three months after an attack of rheumatism, and for the first six to eight weeks of this period should be kept lying down and moved as little as possible. With a child feeling quite well this is naturally very difficult and requires much tact on the part of the medical adviser and the nurse in the management both of the patient and his friends. The night-clothes should be of wool, opening down the front so as to allow of the easy examination of the heart, which must be done frequently. The treatment of the graver cardiac complications, which may develop even in the first attack, such as pericarditis and heart failure, does not come within the scope of the present article, but it should be remembered that digitalis is useless while acute inflammation and poisoning of the heart are present.

The nervous phenomena of rheumatism pass away as the child gets better, with the exception of chorea which requires prolonged and special treatment. Lees states that large doses of the salicylates will cure chorea as well as other rheumatic manifestations, and many authors find aspirin in gr. x doses one of the most efficient drugs in the treatment of milder cases. So that therapeutic experience bears out to some extent the view that chorea is always rheumatic in origin.

A PLEA FOR THOROUGH AND SYSTEMATIC STUDY OF THE MATERIA MEDICA AND THERAPEUTICS.

BY
FINLEY ELLINGWOOD, M. D.
Editor of Ellingwood's Therapeutist, Chicago, Ills.

It is a generally accepted fact among those who pay any attention to the development of the study of the curriculum demanded of medical students, that there is altogether too great neglect at the present time of the study of the Materia Medica, and that the study that is demanded is cursory, desultory, and almost entirely devoid of attraction to the students.

The physicians themselves, being asked to take an introspective view of their own knowledge of the Materia Medica, if they are honest, in the majority of cases are overwhelmed with their own ignorance of the detail of specific or exact action of drugs. Many of them blame their alma mater and those that should lead in medical knowledge for this ignorance, but I am inclined to think the individual himself is much to blame, as well.

The total profession has made marvelous advancement in the last three or four decades in the study of bacteriology, pathology, microscopy, in the development of laboratory methods of drug study, in the study of preventive medicine and of surgery, but in doing this the individual has spent so little time upon the all-important subject of Materia Medica and Therapeutics, that he actually, in many particulars, knows less of drug action today than he did thirty years ago. I say this advisedly and regretfully. But the individual physician is not as much a student of Materia Medica today as he was in the past, because the study then of Materia Medica was accounted the most important branch. It was not overshadowed by surgery and the so-called scientific branches. To the physician then, the all-important knowledge was to know *what medicine* to give to his patient when ill, that would cure.

The study of this subject is difficult. It demands concentration; it demands persistency, and unless applied to the immediate needs of the patient, unless we can make immediate application of the knowledge acquired, it is startlingly devoid of interest. It is not exact, and every student delights in exactness. But why is it not exact? It is because our total knowledge of the subject in the first place is imperfect; secondly, the study is not conducted in systematic, precise, scientific lines. It is not properly classified or arranged. The study is not made, consistent with an exact principle of drug action.

My object in writing this paper for this Journal, is to attract the attention of the readers to a renewed study of the action of drugs; to the study of drugs in line with a principle at once exact, rational and attractive, and to encourage presistence in this study, in these lines, until the student shall have acquired a knowledge and an experience, that in itself, will stimulate him to a most enjoyable presistence in the study, and will enable him to say that there is in this study, when correctly conducted, a fascination that no other study possesses.

I have been trying to teach for many years the following:

That the reason disease is not cured is because *we have not the knowledge of drug action* necessary with which to cure it, or conversely.

That failure to cure disease is due to the lack of knowledge.

That disease will ultimately be subdued, in whole or in part, by remedial measures.

That doubt concerning drug action is a deadly foe to therapeutic progress.

That the study of the clinical action of the single drug *is the only true method* of drug study.

That each drug acts directly and invariably upon one or more exact conditions of disease, and, being so studied and known, an exact reliable knowledge of drug action is obtained.

That when this knowledge is perfected we will not only prescribe for known conditions of disease with immediate success, but we can prescribe with equal success for conditions we have not previously met.

We begin our study then with a perfect analytical study of each disease, in order to determine those conditions which are involved in the patient we are studying at this time. We determine a knowledge of these conditions, and an ability to recognize them whenever we find them, in whatever disease they may occur. We then determine what single remedy will always meet each one of those conditions and correct it. Here is the whole thing in a nut shell; and really this is all there is to it, as this includes a thorough knowledge of the remedies also, with reference to their action upon exact conditions as stated above.

I trust each reader will read and re-read these statements until he has them clearly impressed upon his mind, and will weigh them fully with reference to his own methods of studying the action of drugs, that he may compare the beauty of this method when completed with any other known method.

It must be accepted at once that *this is the only correct method* of drug study. If we prescribe compounds because the manufacturer has advised them for certain conditions, we acquire no precise knowledge of the action of the constituents of that compound, and our prescribing is haphazard, uncertain and largely guesswork. If we could by close study know the invariable therapeutic properties of each one of the constituents of the compound, we would be enabled to determine whether the total compound was applicable in the case required, or whether one or two of its constituents would not work even better, or whether it was not totally inapplicable.

But if we understand drug action as above specified we will seldom, if ever, find an excuse for prescribing a compound, especially one prepared for general conditions, but we will invariably find demands in the condition present in the patient we are prescribing for, for one, two or three single remedies, of which we feel confident, and will thus promptly make a perfect adjustment to the case in hand.

This is the course we adopt in every patient, and this is the course we will adopt when we have learned our drugs, and studied specific conditions as above suggested, and when we adopt this course, the results obtained will be so satisfactory, the observations made will be so rational and consistent, and the confidence we will acquire in the knowledge we have so obtained will be so much in advance of any knowledge previously acquired that the real fascination of this method will impress itself upon us, and in the future we will find ourselves willing students of the specific method of drug application.

Applying this method to the study of well known drugs, every student is surprised at the amount of knowledge thus obtained, concerning the action of some very common remedies knowledge of actions he has no idea could be present in that drug, materially broadening the field of the drug and increasing its value to the prescriber, in some cases a thousand fold.

Furthermore those who have been developing this method, have made observations of the great many drugs that are seldom mentioned by the principle medical journals, or prescribed by the profession at large, and which are but little known, or are spoken disparagingly of by the Committee on Pharmacy and Chemistry of the A. M.A.,but which possess values when studied in this line, actually superior to very many drugs, upon which volumes have been written, as standard drugs and as those which could not be done without.

Many of the readers of this Journal have learned something in an empirical or a general way concerning the action of digitalis or aconite, stophantus, or quinine, ergot, nux vomica, belladonna, ipecac, gelsemium, turpentine or jaborandi as common remedies, but it is certain that studying these remedies from a specific standpoint, we have an entirely different study, and one which brings out beauties not before anticipated.

Added to this, every individual should study from this standpoint echinacea, baptisia, berberis, hamamelis, viburnum, mitchella, collinsonia, disocorea, colocynth, iris, chionanthus, podophyllum, sanguinaria, asclepias, sticta, euphrasia, lobelia, apocynum, cactus, cratægus, calibarbean, pulsatilla, hyoscyamus, rhus tox, and perhaps one hundred and fifty others that I could mention, and he would be surprised beyond measure at the knowledge that would develop, and in the ability he would have in the knowledge acquired, to cope with disease in a satisfactory manner far exceeding anything he had ever hoped or known.

It is to encourage a study, as I have said, in those lines, of both the old and the new Materia Medica, that I am writing this paper. It is to disparage the common use of compounds, the general pharmaceuticals, used with the hope only that they will cure the conditions for which they are prescribed, when a *knowledge* of exact drug action will enable the prescriber to absolutely *know*, without doubt, what will cure this patient, will make him able to cure the condition with positiveness and assurance, thus establishing the confidence of his patrons, in his ability, first and secondly, which is indeed most important, to establish their confidence in the fact that disease *can be cured* with the measures accessible to the physician.

Ignorance of drug action, or doubt—therapeutic nihilism—has directly undermined the confidence of the people, until the drugless methods of cure, are now sought for and adopted by at least thirty per cent. of the population of the United States until the surgeon is in demand only, to any great extent. Faith in these drugless methods cannot endure; they are auxiliary only. Let us at once re-establish the faith of the masses in correct drug action.

While I thus urged this method upon the individual physician, this knowledge cannot be acquired at once; to become an efficient prescriber, one must be drilled in this study through a long period. I think it is necessary also that he forget much of the desultory knowledge, many of the unsystematic, empirical facts he has previously known.

To have this method properly woven in with the web and woof of his total education, it should be begun with his first day's teaching in college, and should be continued with everyday's instruction during the entire course. It is a deplorable fact that so little Materia Medica and Therapeutics is systematically, clinically, and thus practically taught in any of the colleges, and I fear there will not be much improvement in this course, until the individual practitioner, and the profession as a body, *persistently insist* upon a more thorough teaching of this all-important branch.

I would be gratified indeed, and I believe it would result in a most valuable discussion, if the reader of this paper would express freely his own opinions on this matter through the pages of this Journal. All sides of the subject should be presented.

INFANTILE PERNICIOUS VOMITING AND RECTAL HEMORRHAGE. REPORT OF A CASE.*

BY

ANNA RIES-FINLEY, M. D.

Ogden, Utah.

Vomiting is one of the most frequent symptoms of disease in infants and young children. At the same time it is one of the most difficult symptoms to control. The importance of vomiting should therefore be appreciated. The physician must have in mind both its common and uncommon causes. Vomiting of infants and young children can take place very easily and from slight causes, owing to the position and shape of the stomach. Vomiting from an over-distended stomach is a very common cause and does not belong under this heading, as it acts more as a safety valve than an indication of disease or trouble. In acute intestinal obstruction vomiting most invariably takes place, and Holt says, "In the newly born persistent vomiting is almost invariably dependent upon congenital obstruction of the intestine, which is most frequently in the duodenum."

As to hemorrhage, a disposition to bleeding is seen with many diseases of the first few days of life, especially those of an infectious character like syphilis and pyemia. But with these the hemorrhage is not usually fatal. There may be hemorrhages into or from any part or organ of the body.

What causes these hemorrhages is, as yet, unknown, but it is generally conceded that it is something which has to do with the blood or blood vessels, and the vessels become unable to hold their blood. The fragile condition of the blood vessels and the sudden and radical changes taking place soon after birth in the blood and in the mode of circulation doubtless has much to do with the trouble.

My paper has to deal with melena or hemorrhages from the intestinal tract, and I will cite a case of my own experience as foundation for further discourse, the case relating both to pernicious vomiting and rectal hemorrhage.

Mother primipara, age 20, strong and healthy. Had very little nausea in early months of pregnancy. Last three months feet and ankles were swollen considerably; also a slight varicosed condition on inner part of thighs. According to her dates she carried the child near eleven lunar months.

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*Read before the seventeenth annual meeting of the Utah State Medical Association, Salt Lake City, Utah, Oct. 4-5, 1911.

Labor began April 1, 1911, about 2:00 o'clock A. M. Slight pains up till 2:00 P. M. of same day. I was called and made an examination, found that the cervix was almost completely effaced and dilatation about one inch in diameter. Head engaged in the L. O. A. position with bag of water just forming.

Pains were slow and not very strong. Being the first child, I thought best not to interfere, but give nature a chance. Went home and returned to case at 11:30 P. M. Patient was in considerable more pain than on former visit. On examination found head down through superior straight and descending through canal. As everything seemed perfectly normal nothing was done to hasten labor. Patient was not unusually nervous. The bag of water broke at 2:30 A. M. and labor progressed more rapidly.

Chloroform was administered to the patient in a moderate amount for the last half hour and the head was held back for some few minutes to save the perineum. However the child was born at 3:00 o'clock on the 2nd of April, or a little over 24 hours from the time of the first symptoms. Had considerable laceration, which was repaired. Milk appeared on the 3rd day and the patient had an uneventful recovery, with no septic indications. Father gives history of absolute immunity from venereal disease.

Now as to the child, which is the prime factor in the case.

Male, weight 8 lbs., well nourished, but did not cry when born, and had to have a few slaps on the back but cried vigorously after that. Cord was cut after pulsation had ceased. After this there was quite a little show of blood and cord was tied the second time. Child opened its eyes and looked around perfectly natural, and did considerable crying.

On the 3rd I visited and found both mother and child doing nicely. He had urinated, bowels had acted and it looked to be a normal first movement. I ordered hot water in teaspoonful doses during the day as the child was fretful.

Was called at 8:00 o'clock on the morning of the 4th. Grandmother, who was nursing the case, said that when she went to change the napkin on the baby it was saturated with blood, and that when she raised up to change the cloth a stream of blood came pouring from the rectum. I went out at once and found that there must have been fully 12 oz. of blood lost, as four very large cotton diapers had been soaked and there was a pool on the floor. The blood was of a bright red color.

The baby was seemingly as well as before, except the temperature was subnormal and the pulse weak but he seemed to have a great deal of vitality. One drop of ergotol was ordered every three hours throughout the day. There was passed two hours after the initial hemorrhage about 2 oz. of dark coagulated blood, and after that there was no hemorrhage whatever and, as the mother's milk had come, the child nursed every two hours vigorously and dropped off to sleep perfectly naturally until nursing time again. The temperature was taken each day and found to be slightly subnormal.

When only a few hours old the child began to vomit green slimy matter, similar to what usually passes the bowels the first day or so after birth. The vomiting got to be more frequent and in a greater quantity until it would come up more or less at a time almost continuously during the day, but less frequent at night. The child cried a great deal, especially during the night. He kept gradually losing flesh until he was very poor at the end of the 6th day.

During the 6th day would have choking spells if he tried to nurse or if water was given him, even in very small quantities. Condition went from bad to worse until the morning of the 7th, when the child had a very bad choking spell, when a few drops of hot water were given him, and I was summoned in haste. He had recovered from the seemingly laryngeal spasm by the time I arrived and was lying limp and breathing rather rapidly. On changing diaper about 4oz. of dark blood were found and the rectal temperature was 106°. I told them the child would die and at noon he pased away.

There were only two distinct hemorrhages, the first when the child was about 30 hours old, the second or last on the morning of the seventh day, about three hours before death. There had been vomiting of dark green, slimy substance since the child was a few hours old, at first not so much or not so often as occurred the last few days.

During the time between the two hemorrhages the bowels moved freely three or four times a day and was normal in appearance, no blood being visable to the naked eye and no blood stain on the napkin. No distention of the stomach or bowels until the day of death.

Treatment. Hot water in small amounts on first day of birth as there was a tendency to vomit.

Morning of the second day hemorrhage took place. One drop of ergotol every three hours during the remainder of the day, or about five doses. Hemorrhage ceased. Second evening lavage of stomach but vomiting never ceased.

Third and fourth days hot water lavage and 1–20 gr. calomel aromat until ½ gr. was given within 24 hours. Vomiting was not modified but the bowels moved several times during the time it was given.

Fifth day olive oil and lavage, spice poultice to stomach and bowels; nursed well.

Sixth day hot water; a small amount of Waugh's infant anodyne as he seemed to have colic. Got easy and did not vomit until late in the evening, then vomited off and on most all night.

Seventh day choking spell; nothing was given internally and he refused to nurse. Hot spice poultice to abdomen for last three days. Death at noon on the 7th, day with temperature of 106°.

Postmortem: On opening abdomen that part of the stomach and intestines that lay next the gallbladder was bile-stained and bladder was quite large and distended with bile. Liver looked normal. Mesenteric vessels were large, engorged and seemed very fragile, almost an oozing. Stomach contained a small amount of old blood and was distended with gas. Bowels were very much distended and full of serum and small blood clots. Before opening the stomach or bowels the later were raised out of the pelvic cavity which contained about 1 oz. of dark fluid, looking like blood in dissolution. Corpse was very spotted and there was a slight oozing at the umbilicus which had perfectly healed during life.

Discussion.

Elsie A. Faust: It struck me while the doctor was reading her paper that the condition might arise from obstruction of the portal vein or the ductus venosus. Then, again, the possibility of hemophilia should not be forgotten. It might be that obstruction of the blood vessels of the mesentery, in the presence of hemphilia, might cause considerable oozing and account for this rare condition.

Clarence Snow: Hemophilia as a cause of hemorrhage in the new-born occurs about once in a thousand births. The injection of normal rabbit serum has met with some success. In emergency cases diptheria serum, with the antitoxin present, may be used, as it is usually available. Another form which is cheaper is the anti-streptococcic serum. Still another method, and one that is probably the most valuable of all, is direct transfusion of blood, taken from the father or the mother, preferably from the former.

Ross Anderson: I would like to ask Dr. Finley if she examined the child for intussusception. I would also like to emphasize the value of anti-diphtheritic serum in hemorrhage from any cause. I believe also that the use of the calcium salts in addition to the serum is very valuable especially in hemorrhage from the bowel.

J. F. Critchlow: I recall a case which gave the typical signs of an intussusception. The child became very rapidly schocked but the manipulation in cleaning the abdomen, preparatory to operation, and the use of the anesthetic reduced it. After the incision was made, in examining the intestinal coats, I found a well marked ring where the intussusception had existed. In this case I am certain it unfolded itself and the child recovered.

O. B. Fowler, Denver: I would like to call attention to an article written by one of the interns of the New York Lying-in Hospital, who reported the use of human blood-serum in 17 cases with complete success—100 per cent. of cures; 12 cases previously treated by other means resulted in 100 per cent. deaths. This is one of the striking things in recent medicine. The precentage of these cases is higher than figure mentioned by Dr. Snow. I think it occurs in the proportion of about 1 to 100.

Gill Richards: I have seen autopsies on four or five cases of fatal intestinal hemorrhage in the new born, and the striking feature to me was the absence of any evidence of eroded blood vessels. I think, therefore, that these hemorrhages are due to oozing from the mucous membrane of the intestinal tract.

I have also seen three cases that were treated with serum with satisfactory results.

G. C. Emery, Preston, Idaho: Hemorrhage in the newborn will be encountered now and then, but it is not a common condition. I recall the case of an infant that began vomiting blood on the second or third day after birth. There was nothing to indicate obstruction and the child did not seem to be in distress at all. Every little while, however, the child would regurgitate considerable quantities of dark blood. This condition lasted two or three days, when the infant died. In that case, I believe that a specific history was responsible for the condition.

Anna Ries-Finley, closing the discussion: Answering the question asked by Dr. Ross Anderson, I thought of intussusception and my examination of the child covered that point. The abdomen was perfectly soft on palpation and had the appearance of being normal in every respect. At the autopsy there was no indication of previous intussusception that had spontaneously rectified itself.

THE PUBLIC SCHOOL AS A FACTOR IN PREVENTING INFANT AND CHILD MORTALITY.

Discussion on Infant Mortality before the State Sanitary Association, Lakewood, New Jersey, November, 1911.

BY
HENRY L. COIT, M. D.
Newark, N. J.

There are a great many causes of infant mortality, many more in fact than in any other period of life, more than in all other periods after infancy combined.

Some of these are contributing causes: they are remote and indirect, like parental indifference, which is conducive to neglect; like industrial influences upon the pre-natal and nursing periods and like ignorance of infant hygiene which surrounds not only the newly born but the older infant with many conditions inimical to its life.

Some of these are immediate causes: they are obvious and direct, like milk which often conveys infectious diseases such as ileo-colitis, scarlet fever, diphtheria and tuberculosis; like malnutrition from imperfect feeding which is none the less direct though slower, more insidious and is seen too late, and like congenital physical defects which are such potent factors in the mortality of infants in the first few weeks of life.

Many congenitially feeble infants and young children are susceptible to such slight causes of death as the exposure to excessive heat or cold or the sudden result to such delicate infants of convulsions from food poisoning.

Most children come into the world amid surroundings which are uninviting, not beautiful, devoid of comfort and were it not for the fact that their mothers love them, it would be a cold and cheerless world and many more would perish.

Few mothers can bring to the child much more than their love. The inexperience, narrow quarters, lack of money, poor food, helplessness and the ignorance of their advisers are conditions far removed from the natural birthrights of the infant, which should be provided to insure its health and happiness.

In Canton, China, eight hundred out of every thousand die in infancy but in other civilized communities, the infant mortality ranges from 150 to 350 per thousand births or from 12 to 33 per cent. This amounts to about 300,000 infant deaths in the United States every year.

When live stock or wild game or trees begin to die, the Government directs a Commission to find the cause and spends millions of dollars to prevent the destruction but when thousands upon thousands of little human beings die, designed for the foundations of the nation, there is no one to demur and few there be who regret it.

There are many who would claim that human mortality in infancy was not an evil, yet those who have experienced or witnessed a mother's grief when contemplating a vacant crib will not agree. We believe that it is an economic misfortune for any nation to lose its children and that no nation can rest on a firmer foundation than the vitality and viability of its offspring.

While the mortality phase of the question cannot be magnified in importance, yet there is another aspect of the question which concerns us far more, namely: The physical condition of those who, while handicapped in infant life, still remain to struggle on up through childhood to feeble, ineffective and dependent adult life.

While millions of infants suffer during a short and terrible life and die before they realize what life means, many more millions are so unfortunate as to live on with a physical handicap which makes life a torture, the home a pandemonium and family life anything but desirable.

This is not an unmixed evil, however, as the following quotation from Nevin, of Manchester, will show: "It is not merely, then, our desire to reduce infant mortality which causes us to study this problem, but we are moved even more by the consideration that for every infant we can save, we shall raise the level of many others who might have pulled through but not so successfully."

The best means of preventing sickness and death would be to raise the living power of the individual to what is called immunity. If we could apply this principle to infancy and childhood through educational and prophylactic measures, we would bring about the greatest possible physical efficiency in manhood and womanhood.

While physicians have led in this crusade against infant mortality, it is strictly a problem in preventive medicine and, therefore, clearly to be solved by educational methods which should be applied by the people (the State), at the expense of the people and for the people.

Beyond this, when we forcast the future of our children and regard them as prospective parents and citizens, to whom we must leave the responsibility of parenthood and citizenship and who must take, maintain and develop the institutions which our fathers established and which we transmit, the question assumes an important relation to the stability of the nation.

The Educational Board of Manchester, England, in 1902, instituted the instruction of seventh grade school girls in infant hygiene so that they could be useful as the mother's helper. They were called little mothers. The plan has been successfully introduced in several of our own cities with excellent results and lasting benefits to the infants at home.

Another and a more widespread movement antedated the foregoing plan by ten years. The Consultation for Nursing Mothers ("Consultation de Nourisson") is a centre for the education of the mothers. It was also of European origin in 1892.

For this institution we are indebted to Budin, DeFour and Variot in France. When properly organized it is always under medical control and direction and its station work is followed by a visiting nurse who supplements the medical work by teaching the mother in her home.

We propose, as a comprehensive plan to check sickness and death among infants and young children, that to the Manchester plan for "Little Mothers" shall be added the French plan and that the "Consultation for Mothers" shall be conducted within the public school and finally become part of its system.

It cannot be repeated too often that the most fundamental cause of infant and child mortality, expressed through many channels, is ignorance and the most potent influence which will destroy and remove it is imparted and applied knowledge.

The teaching of infant and child hygiene and the care and management of children should be applied in women's colleges, in finishing schools for girls and for pupils of the eighth grade (little mothers) but a much wider field for this instruction would be the mothers of the industrial class in the congested school districts, many of whom did not and most of whom could not complete the curriculum of the school.

This instruction has, heretofore, been given by private philanthropy in hospitals and infant welfare stations at a few isolated points and has been made available for comparatively few of the great mass of mothers who need it most

Since the great majority of these mothers do not realize their ignorance until they have children to care for and since the mother has the custody of the child before and after the school period and since she was not taught infant welfare in the school, she ought to receive a post-graduate course from the school with her own baby as an object lesson.

This kind of instruction applied to the indigent mothers in a school district would be justified for the safety of the school itself; since from these homes, where parental ignorance prevails, there is a daily migration of older children to the school with the same lack of knowledge affecting each one of them and who for this reason often become the carriers of disease to the school.

The home and its hygiene, the mother and her maternal fitness, the children and their health, are all intimately linked with the school and anything affecting the integrity of either is a menace to the school system.

Hospitals and infant's welfare stations are too few and too scattered: public schools are found in every district, are easy of access and aside from the importance of having the mother's interest early linked with the school where her child will later spend much of its time, the logical rallying point for imparting and receiving public instruction is the public school.

Teaching the mother or caretaker to lay firmly the physical foundation of the child, as a preparation for efficient intellectual work during school life and which continues through so long a period of childhood is, we believe, a legitimate function of the public school.

Such knowledge properly imparted through these channels would become the most effective factor in the prevention of infant and child mortality because it would be bestowed upon a far greater number than as now through isolated medical charities.

The knowledge necessary to the attainment of these great objects is now within our grasp, is systemized and it needs only the active agency of the public school with the co-operation of trained physicians and nurses who have acquired this special knowledge for their full accomplishment.

The plan of placing "The Mothers' Consultation" in the school, which has been installed in a public school in Newark, New Jersey, grew out of necessity. In the summer of 1911, one of the Stations of The Babies' Hospital, in a congested disrict, was no longer available. Dr. Mockridge, who conducted the consultation, proposed a vacant room in a school nearby. I immediately saw the opportunity to illustrate a plan for putting such consultations in all elementry schools, which if it were proved to be practicable and useful, would exert a widespread influence.

Having gained the approval of the principal, the medical supervisor of schools and the city superintendent, application was made to the Board of Education for the use of the school. The presentation favorably impressed the members of the Board and the use of the Eighteenth Avenue School was granted for the purpose of working out the details of the plan.

There will be no work preformed at the Consultation or in the homes except through instruction of the mother and the gathering of data to determine the influence of instruction upon the viability of the child. This will include records of the vital phenomena and social statistics. Instruction will be given to the mother in Hygiene, Reasons for Cleanliness, Dangers of Dirt, Care of the New Born, Importance of Breast-feeding, the Care of Milk, Artificial Feeding, Weaning, Children's Diet, Management, Advantage of System, the Bath, the Clothing, the Rooms, the Air, Ventilation and Sunshine, the Baby's Bed, Its Sleep, Danger of Anodynes, Exercise and the Care of the Sick Child. If a child is found ill, it will be referred to the family physician or, if too poor, to a medical clinic or hospital.

The link which will fix the mother's interest is the periodical weighing of the baby which is the best index of its progress. The interest of the visiting nurse in the infant's welfare and her attempt to help the mother apply the instructions given by the physician, will engage her best efforts to apply them and one year's teaching of this character will become a liberal education in the hygiene of the home.

The Consultations, one for foreign-speaking mothers and one for English-speaking mothers, are in charge of the Medical Staff of The Babies' Hospital with the active co-operation of the principal and his teachers, upon which depends largely the success of the experiment.

In one year a detailed report of this work and its results will be made to the Board of Education of the City of Newark with the hope that it may be found valuable enough to be duplicated elsewhere.

277 Mt. Prospect Avenue.

SOCIETY TRANSACTIONS

NEW YORK ACADEMY OF MEDICINE.

Section of Pediatrics.

Stated Meeting, Held January 11, 1912.

DR. WILLIAM SHANNON IN THE CHAIR.

A Case of Torsion of the Uterine Adnexa in Hernia in Infants.—Dr. Alexis V. Moschowitz presented this patient who was one of two operated upon by him within five months. The history of these two cases was practically the same. The child that he presented had been admitted to Mount Sinai Hospital on March 25th, 1911. She had been seen on the previous day by Dr. Heinman who had found her normal except that she had six toes on each foot. About nine hours before admission to the hospital she had cried and vomited and the mother noticed a swelling in the left groin. The baby looked and acted as though she were well at the time of admission; the vomiting had ceased and she retained nourishment. The bowels moved spontaneously and the ejacta contained no blood; the pulse, temperature and respirations were normal. There was a distinct swelling in the left groin which was diagnosed as a strangulated inguinal hernia containing either a tube and ovary, or a portion of the uterus. It was found at operation that the hernial sac emerged from the external inguinal ring, but instead of taking the usual course into the labium, the sac was reflected upward and outward; this was a perfect example of an inguino-superficial hernia. The left tube and ovary were found in the sac twisted in one complete revolution. The child made an uneventful recovery and was well at the end of nine months after the operation. About five months after a second case was brought to his office. This child was also admitted to Mount Sinai Hospital and operated on, but he could not say with absolute certainty that there was any twist of the ovary in this case. Here, too, an uneventful recovery followed the operation.

Cases Showing the Benefit Derived from Treatment in Birth (Erb's) Paralysis.—Dr. Henry Frauenthal presented these cases and showed a number of photographs of other cases illustrating the results of but two or three weeks treatment in some instances. These patients were of various ages from six months to 22 years. In the first patient where the arm was very frail six months treatment had resulted in practically a normal range of motion although the part had failed to get its normal growth.

The second patient was a woman, 22 years of age, who had a claw hand and had never been treated as she had been advised that nothing could be done for her relief. There was a marked improvement in the hand and arm after three months treatment. A great deal could be accomplished by education in cases of claw hand. The tone of the muscles had improved greatly under the treatment employed which would be described in his paper. He hoped to show this patient a year hence.

Case of Chronic Colitis in a Child Three Years of Age with Deformity and Deviation of the Sigmoid Flexure.—Dr. J. Finley Bell presented this case. a child that came under his care on June 2nd, 1909, when about five months old. The child had been nursed for two weeks, then put on mixed feeding, and finally on modified milk, prepared according to the formulæ in Dr. Holt's small book. When Dr. Bell first saw this patent, the child was uncomfortable, cried a great deal, and had never had a normal bowel movement. The child had nearly doubled his weight at the end of three months but had lost a part of this gain when Dr. Bell first saw him. He was dull and apathetic, the apathy at times amounting to stupor. Early in August he had a sharp attack of diarrhea, with stools containing a large amount of mucus. During the latter part of August he had a similar attack, and another in September. These attacks were marked by pain, tenesmus, and numerous bowel movements containing much mucus. Irrigations were tried but were only partially successful and were soon abandoned. In October the child was put on goat's milk after having been fed on a whey top milk mixture. He did well on the goat's milk until the supply began to fail and had to be supplemented by other food. These attacks of colitis continued over a period of two years becoming more frequent and severe as time went on. Finally, in 1911, the urine was found to be alkaline and contained leucocytes, triple phosphates, urates of sodium, and ammonium. For this condition the child was put on saccharine, benzoate of soda, and urotropin. This treatment was continued until the Fall of 1911 when it was decided to have an x-ray picture taken for the purpose of discovering a possible urinary calculus. The history of this case in connection with the x-ray plates presented a number of interesting questions regarding the etiology, symptomatology and treatment.

Torsion of Uterine Adnexa in Herniae of Nurslings.—Dr. Alexis V. Moschowitz read this paper in which he stated that the two cases reported belonged to a series of four in which an approximately correct diagnosis had been made before operation. A search of the literature showed that this form of hernia was unusually rare. Damianos, in 1905, made a resume of 24 cases, and additional cases had since been reported bringing the total number, including his own cases, up to 40. These cases showed such a remarkable degree of uniformity in symptoms as to enable one to make a diagnosis of this form of hernia with more than reasonable certainty. Dr. Moschowitz divided all cases of ovarian hernia in children into three groups as follows: 1. Those in which torsion of the pedicle had been distinctly noted in the history. 2. Those in which there was no torsion present. 3. Those in which torsion had not been noted; many, if not all, of this group were cases in which the torsion was not noted or had become untwisted in the course of manipulations made during the more or less hurried operation necessitated by the tender age of the patients. The frequency of overian hernia in infants under one year of age and in childbearing women was a striking phenomenon. It practicaly never occuried in older children or in virgins except as neglected cases from early infancy. Its occurrence in infancy might be accounted for by the fact that the ovary in infants was normally an extrapelvic organ, and in childbearing women it became so during pregnancy. During intrauterine life the ovary descended only as far as the brim of the pelvis where it remanied for a year or more. Its weight and the deepening of the pelvis accounted for its subsequent descent. This explained why the ovary during infancy was an extrapelvic organ and was thus more liable to enter a hernial sac. Again the strongest predisposing cause for hernia of the ovary was that the sac was congenital. While it was difficult to prove that the sac was congenital in the female, it seemed that congenital hernia was as frequent in the female as in the male. The peculiar nature of the sac was such in many cases that it could be accounted for in no other way but that it was congenital. Dr. Moschowitz based this statement on the fact that in a rather extensive experience he had found two varieties of sacs in oblique inguinal hernia. In the one the sac nearly followed the course of the round ligament and was easily separable from it. In the other form the sac was of exceeding delicacy and was so intimately adherent to the round ligament as to be practically inseparable from it; in other words the round ligament was covered by its normal peritoneum only. The former was the acquired hernia and the latter the congenital. The question of the torsion of the ovary was as much mooted as that of other organs. In all torsions a prerequisite appeared to be a disproportion in size between the twisting body and its pedicle; this disproportion was present to a perfect degree in the ovary.

In making a diagnosis of twisted pedicle in ovarian hernias in infants, the fact of the existance of a hernia and that it was strangulated were obvious. One could reach a diagnosis as to the organ contained in the hernia by exclusion. The excellent condition of the child and the freedom from bowel trouble at once excluded involvement of the gut. There remained to be considered the omentum, the uterus, and the adnexa. Omental hernia in infants was exceedingly rare because of the shortness of this viscus in infants. It was very improbable that the sac should contain the uterus owing to the rarity of this condition and to the immobility of the uterus; consequently only the tube and ovary remained. Dr. Moschowitz had failed to diagnose torsion of the ovary in his cases because at that time he did not appreciate that torsion practically always occurred in strangulations of the ovary in infants. In the 40 cases reported diagnosis was made only once and that by Quadflieg, who had had the advantage of having operated on a similar case only a short time before. The clinical picture in all of the reported cases was practically the same as in the cases just reported. A case reported by Heegard was of particular interest. The patient was four weeks old when the swelling was noted in the left inguinal region and a diagnosis of abscess was made. At the operation a twisted tube and ovary were found and extirpated. The child was readmitted to the hospital five weeks later having a swelling in the left inguinal region similar to the one which had been operated upon. An exploratory incision showed that the right ovary had prolapsed through the left inguinal canal. Tubby had reported a case in which both the right and left adnexa were found in the sac.

With regard to the treatment there was not much to be said. If the case was one of recent origin gentle taxis might be tried, but if this was not successful prompt operation was the only alternate. By prompt operation the prolapsed ovary might be saved by untwisting the torsion. Delay meant the extirpation of the organ; in either event the prognosis was good.

Discussion on Dr. Moschowitz's Paper

Dr. John Douglas said that he had had two cases of hernia of the tube and ovary. The history of this case a child five months of age was published in the Medical and Surgical Reports of St. Luke's Hospital. This patient was admitted to the hospital with the diagnosis of a strangulated hernia and, as in Dr. Moschowitz's case, the patient did not appear to be sick. The diagnosis made was strangulated omentum, and a hernia of the tube and ovary was not thought of. The patient made a good recovery.

Dr. Henry W. Berg asked what type of hernia they were considering; was it the classical femoral, or inguinal, or the various types of ventral hernia. It was very interesting to know that these herniæ of the tube and ovaries probably occurred more frequently than generally supposed. It was of the utmost interest in hernia of the tube and ovary to be able to feel these organs in the hernial sac; the average practitioner, however, would not think of such a condition; feeling such a mass he naturally would think that he was dealing with some neoplasm because there were no symptoms of intestinal obstruction. It was in his opinion interesting to know that these were not extrordinary herniæ. Dr. Berg asked whether these cases of femoral hernia were more often complicated by the presence of tube and ovary in the sac rather than inguinal hernia.

Dr. Alexis Moschowitz said that his cases were both of the inguinal variety and that practically all of the cases reported in the literature were of that variety. As he recollected there was but one case of the femoral variety reported.

Dr. John Douglas said that it seemed to him that Andrews had reported 99 cases of hernia of the tube and ovary in 1907 and that the majority of them were inguinal. There were five cases of the femoral variety, four of the obturator, and two ischiatic.

Dr. Alexis V. Moschowitz, closing the discussion, said that he was only referring to herniæ which occurred in young infants, and he was not speaking of herniæ that occurred in adults. He referred specially to young nurslings and of the female sex.

The Benefit Derived from Treatment in Birth (Erb's) Paralysis. —Dr. Henry W. Frauenthal read this paper. He said that the purpose of presenting this paper to the members of the section was to call attention to the prevailing error in the minds of general practitioners that nothing could be done for brachial plexus paralysis. This seemed strange, in view of the fact that nearly all text books on pediatrics advised treatment for the condition. After reviewing the history of the literature on this subject from 1768 to the present time, Dr. Frauenthal stated that it was quite evident that Erb's paralysis was due to forcible manipulation in the process of delivering the child in most cases. Schumacher, in 1899, in a collection of 95 cases, found 53 head presentations and 40 breech cases. Of the 53 head presentations, forceps were used in 28 and spontaneous birth occurred in ten. The finger had been used as a hook in the axilla in 10 cases. Of the breech presentations, six were spontaneous, and 34 assisted. Dr. A. S. Taylor gave four reasons for the occurrence of brachial plexus paralysis. 1. The backward pressure of the nerves by the clavicle: (a) transverse presentation of the vertebrae. (b) on first rib. 2. Hyperextension of forceps. 3. Pressure of the forceps. 4. Tension on the nerve roots. In breech presentation the lesion occurred in the delivery of the aftercoming head; the fingers hooked over the back of the neck pulled both shoulders down, and were over the head and neck. Here again rotation of oscillation increased the strain on the nerve roots.

It was evident that any form of traction that pulled the head and neck away from the shoulders was the exciting cause of the lesion and as a corollary, the lesion might occur with any presentation. The symptoms of this condition were that the arm hung helpless by the side and could not be abducted because of palsy of the deltoid and supra-spinatus muscles; the forearm was extended and could not be flexed on account of paralysis of the biceps, bracchialis anticus, and supinator longus; there was extreme pronation because of palsy of the supinator brevis and biceps, and the entire arm was so rotated inward that the palm of the hand might look backward and outward; the humerus was markedly rotated inward as a result of paralysis of the supra-spinatus, infraspinatus, and teres minor muscles. When the infant remained peevish and fretful for a considerable time after this accident at birth, and when handling of the extremities gradually increased the pain and irritability, there was present a traumatic neuritis aggravated by pressure incident to the blood clot and rent in the perineal sheath. Cases that did not present this symptom would show a more or less complete spontaneous recovery. In severe cases after several months the internal rotators, especially the pectoralis major, became markedly contractured further increasing the deformity of the arm and shoulder joint. This combined with the paralysis of the external rotators might lead to more or less posterior displacement of the head of the humerus. Some contracture at the elbow was also present preventing full extension and more or less flexation contracture and ulnar adduction at the wrist.

In regard to treatment Dr. Frauenthal thought that results depended on the time when treatment as begun, and the kind and character of the treatment pursued. The earlier they directed their attention to assisting nature in its reparative process the nearer to a normal condition could be established. The methods of treatment advised by the writer were the result of his experience in the treatment of 100 cases, in which treatment had been instituted from within forty-eight hours after birth to one in which treatment had been delayed for twenty-two years.

If the child was seen immediately after birth much benefit might be expected by approximating the ends of the lacerated nerves. This could be done by a long sleeve, extending down over the hands, up about the neck, and being attached back of the neck by safety pins. If the position was to be maintained, it could be done by an appliance made of soft leather, going about the body and and held by laces (as shown in the photograph). The forearm could thus be held at right angles by a screw arrangement. Should a clot be present the absorption might be hastened by using a high frequency current once or twice daily for a period of five minutes. Following this the writer had used a combined galvanic and faradic current, interrupted 72 times to the minute, which was accomplished by a clock arrangement in the Victor wall plate. A contraction synchronous with the heart beat was an added efficiency to the electric current. The current should not be strong enough to produce pain sufficient to cause the child to cry. There was danger that a too strong current would defeat its object by causing destructive degeneration. To preserve the tone and function of the muscles, mild massage of the forearm and shoulder should be given; but damage might be done by too long and vigorous massage. When children came under observation late in life, after the fourth year, a series of exercises was added. These muscle movements were gone through before a mirror and the patient was taught to concentrate his mind on the physical effort. If the child was unable to go through the motion the attending nurse assisted him and this work was kept up until the muscles came under the control of the will. Some might credit these good results in young children to Nature's spontaneous resolution, but where good results followed in function, and they had a shortened arm showing the injury to the trophic nerves, they could feel that the result was far better than if they had not aided it by treatment. Dr. Frauenthal exhibited some x-ray photographs showing the degrees in the relative size of the bone of the humerus, due to this injury. In children over three years of age restricting the motion of the good arm during hours of play necesitated their making efforts with the arm affected with Erb's paralysis. Five cases presented had come under his observation in the first two weeks after birth and he called attention to the extent of the range of motion and also that the shortened arm, as compared with the good one confirmed the diagnosis of an injury to the brachial plexus.

Dr. Frauenthal related the history of three cases that were typical of many others at the Hospital for Deformities and Joint Diseases, and exhibited photographs. The child first presented had come under his care at the age of four months. For two and one-half years she received the combined galvanic and faradic current for one week, and the following week was treated with the sinusoidal current. From the age of three years she had received, in addition to this, a series of exercises before the mirror in which she was taught to concentrate her mind on the physical effort. She now had some shortening of the arm and a corresponding decrease in the bony structure as compared with the good arm, but she had the ability to go through the normal range of motions.

Dr. Herman C. Frauenthal said that there had been at least 100 cases of Erb's paralysis at his clinic during the past few years. Instruction given the mothers formed an important part of the treatment. They were instructed to place the arm between supination and pronation and to keep it there. When the children became older the good arm was tied inside the clothing and they were compelled to use the bad one. The importance of not using too much electricity and massage in these cases and the importance of employing neuro-muscle education should be emphasized.

Discussion on Dr. Frauenthal's Paper

Dr. Henry W. Berg said that much interest was attached to the report of these cases for one who had done much obstetric work and had seen many of these cases. Many of them were classified as cases of palsy or Erb's paralysis and many were harmless cases of palsy which occurred immediately after birth and made spontaneous recoveries in less than thirty (30) days after birth. During eighteen or nineteen years he confined over three thousand (3,000) women and he has seen many of this type of cases, cases that were not due to torsion, to stretching, or pulling on the part of the obstetrician. The cases that showed in the axilla signs of hematoma, or extensive traumatism, belonged to an entirely, different class of cases. The cases he referred to were those that were born with birth paralysis and which were cured spontaneously. Many years ago he was interested in the reason why some cases recovered and some did not because it was very essential that one should be able to make a prognosis; they should be able to predict in advance what cases would recover in one or two months and to know exactly the type of lesion they were dealing within a given case.

With regard to the production of these paralysis, they usually occurred because of the uterine pressure exerted and the long continued seance where the patient was having pains for thirty-four (34) to forty-eight (48) hours prior to the birth of her child. Those were the cases in which the arm was stretched over the head, often with the breech coming first and then the after-coming head had been subjected for a long time to compression. These were the cases that got well; they were not the cases that resulted from traumatism of the brachial plexus. Where there was traumatism in the axilla with the formation of hematoma recovery was doubtful. In cases that were seen two, three, or four months after birth, if the faradic current showed a reaction and the glavanic no reaction of degeneration, recovery would be possible. There was another class of patients in which the paralysis had resulted in contractures and advanced stage of atrophy, cases in which the nerves and soft parts were injured with resulting muscular and osseous atrophy. There was a lesion in the motor, the sensory, and the trophic nerves, and as a result atrophy of the bones occurred together with atrophy of the muscles, etc. In these cases the orthopedic surgeon gave some relief by massage and electricity, but only up to a certain degree. His work was invaluable in these cases but it was important from a prognostic point to be able to distinguish which cases were going to do well and which were not.

Dr. Henry W. Frauenthal, closing the discussion, said that he had been oftentimes disappointed in not being able to obtain the reaction of degeneration in these cases of birth (Erb's) palsies. In many cases the patients would not consent to the use of a sufficiently strong current of electricity to bring it out. He did not think that the presence of contractures affected the results very much. By preseverence they were able to obtain a practically normal arm function even though it required two, three, or even six years.

Chronic Colitis in Child Three Years of Age with Deformity and Deviation of Sigmoid.—Dr. J. Finley Bell after reviewing the history of the case already cited said that the questions that came up regarding the etiology, symptomatology, and diagnosis were such that he would like to have them discussed by the section and therefore he would limit his paper to a brief statement of these questions. The first question which suggested itself was whether these cases of chronic colitis were all due to deformity or deviation of some portion of the sigmoid. Again, were such deformities and deviations always congenital or might they not be the result of acute attacks of colitis of bacterial origin, the deformity having been produced by severe tenesmus, or excessive irrigation. Inasmuch as many of the cases of colitis in adults had been shown by x-ray examination to have marked deformity and deviation of the colon, some of which had been improved and some cured by surgical measures, whether or not these cases had been congenital, to what extent were symptoms of the condition present during childhood. Formerly methods of diagnosis were along bacterological lines, but these gave no enduring results. In this child of three years x-ray photographs taken after the bismuth test meal and enema was eminently successful, and hence Dr. Bell felt convinced that in all cases of chronic digestive disturbance in children this procedure should never be omitted from the examination. As to treatment the points of interest presented were hygienic, medical, and surgical. It was evident that the deformity and deviation could not be corrected by medical treatment, that success along these lines depended upon the ability of the deformed intestine to functionate normally after the mucous surface had been treated medicinally. If improvement followed such treatment would it be lasting? The pediatrician and surgeon should watch these conditions in every case in order that treatment might be prompt, correct, and adequate. As a result of this refinement in diagnosis a new field in pediatric surgery might be opened. In the case presented medicinal and dietary measures had been tried without avail and irrigations had to be continued daily; this had so impressed the little patient that he talked of them and of his condition almost constantly and was fast becoming a juvenile neurasthenic.

Discussion on Dr. Bell's Paper

Dr. Joseph E. Winters said that speaking from his own experience he did not believe that anything better than goat's milk could have been devised for this infant. He had had three particular experiences with goat's milk that had commended its use to him. In such cases, with the appalling death rate that occurred during the summer weather, goat's milk whenever available gave most valuable results. It had been his experience that after the age of one year milk and irrigations were the cause of the appearance of mucus in the stools. The long continued use of irrigations at any period of life would cause the persistence of mucus in the stools. The sigmoid was long in children and very likely to be misplaced. Any child with colitis would do well if fed on nothing but cereals with butter and salt, but broths, milk, and eggs should be prohibited. Irrigations, also, should be entirely excluded from the treatment of these cases. Dr. Winters cited several cases of long standing that had promptly responded to the dry cereal treatment.

Dr. Henry W. Berg said that he had hoped to hear some surgical opinions as to the handling of these cases. The pictures presented demonstrated one thing and that was that the bismuth meal used bringing out the outlines of the stomach and intestines under the x-ray was going to be a great source of advantage in diagnosis. He knew of nothing that threw more light upon this type of cases than the injection from below of the colon and rectal tract with bismuth emulsion preceding the taking of x-ray pictures. It should be remembered, however, that there was a source of error in the relative position of the patient. The picture exhibited showed an extraordinarily large sigmoid for a child of that age, but there was no question but that the sigmoid had the large number of convolutions shown. They should have a series of x-ray pictures of children of from one to four years of age in which the normal and the abnormal might be compared. Before these pictures could be properly interpreted they should be able to distinguish the normal from the abnormal; this was especially true in cases without any symptomatology. The sigmoid shown was exceptional and possibly some surgical measure would be required to shorten it. The increase in the spinal column was so much greater than the increase in the length of the intestinal tract during the process of growth, that if the conditions present were not pathological they might become normal in the seventh, eigth, or ninth year. If they could temporize either by some surgical procedure, or by feeding and irrigations, so as to tide the child over two, three, or four years there would be hope that this disproportion of the intestinal tract might be overcome and function occur as in the normal bowel. Dr. Berg thought there was too much irrigation in these cases; in many of these children with long sigmoid flexure, good results followed the use of soap-suds enema with plenty of non-irritating oil. He preferred first sweet oil and then castor oil. The cause of many of these cases of mucous colitis was a hypertrophy of the coats of the transverse and ascending colon and of the mucous membrane and this acted as an accessory in producing the vast amount of mucus which appeared in the stools. If they could keep the sigmoid clear of stools they could, in all probability, cure their patients. The only practical operation in such cases would have in view the shortening of the decending colon and sigmoid flexure.

Dr. Sara Welt-Kakels said she did not think it likely that there was any interdependence between the displacement of the intestine and the irrigations ordered by Dr. Bell. The anomalous position of the large intestine might be an etiological factor in the production of the colitis. It was well known that the decending colon and sigmoid flexure were very long in infants and that the sigmoid had multiple flexures; this and the long meso-colon permitted it to drop into the shallow infantile pelvis; this would easily result in an undue accumulation and stagnation of feces, the production of a faulty circulation and colitis. These conditions were remedied at about the sixth or seventh year when the different parts of the intestine assumed a more normal position. Dr. Kakels suggested to Dr. Bell the use of the gastroniaphane to learn if he could reach the place supposed to be the sigmoid flexure.

Dr. John Douglas said there was another point in the etiology that should be born in mind and that the general musculature of the lower protion of the intestinal canal, and especially of the sigmoid flexure and the rectum, was deficient in tonus as compared with the rest of the intestinal tract in infants. He did not believe in this case that it was possible to say whether the malposition was an etiological factor of the chronic colitis or whether the colitis was an etiological factor in the production of the malposition; one might be dependent on the other, a vicious circle. The bismuth x-ray was a wonderful aid in making diagnosis and indicating treatment. Under proper treatment there would result an improvement in the musculature of the intestinal tract throughout. Those cases which could not be cured by medical means and who were losing ground should have recourse to surgery. The operation was not necessarily a dangerous one. There were two things to be taken into consideration; first suspension of the sigmoid, sigmiodopexy, and secondly, resection of the sigmoid. If by a sigmoidopexy a correction of the volvulus was possible there would be no question of any resection of the intestine. In Dr. Bell's case a sigmoid opexy might be possible and a resection could thus be avoided. The former operation could be done without much danger. If unsuccessful then the more dangerous operation might be restorted to. Dr. Douglas did not, however, advise any operation until medical treatment had failed.

Dr. Henry Heiman said that almost forty years ago Dr. A. Jacobi called attention to these conditions, but it had been only recently that more attention had been paid to them by others. In 1886 there had been described another condition which should not be confused with the condition described by Dr. Jacobi. Among the older children there occurred an hypertrophy with dilatation of the intestinal tract, especially of the colon, and this caused a mucous colitis and constipation. The two types of cases should be separated clinically. One type of cases would always make a good recovery; this type would adjust itself; as the pelvis grew the descending colon would assume its normal size. Whereas, on the other hand, in Hirschsprung's disease, with hypertrophy and dilatation of the lower portion of the colon, these patients might come to operation.

Dr. Heiman said he would not recommend in a case like Dr. Bell's the employment of soap; it irritated the delicate mucous membrane. He thought it would be better to use the physiological salt solution because the treatment should be used for months and months. If the child was not gaining under medical treatment, then recourse should be had to surgical intervention.

Dr. Alexis V. Moschowitz acknowledged that he had an untrained eye in these cases but the patient presented by Dr. Bell did not look to him to be very sick; he thought the baby a very healthy looking one. The symptomatology, as described by Dr. Bell, pointed to a colitis. The use of the x-ray discovered a fair sized sigmoid flexure but he had seen sigmoid flexures in unborn babies just as large; in fact, he said he had seen sigmoid flexures that occupied the entire abdomen. He granted that the sigmoid flexure in Dr. Bell's patient was a good sized one. He did not believe that anything should be done at present from a surgical point of view, although a sigmoidopexy might do good. However, if anything in the surgical line was required they should resect the sigmoid and do an end to end anastomosis; this was a rather formidable operation upon anybody, and particularly upon an infant of three years. He thought the child was going to make a good recovery without resorting to operative interference.

Dr. J. Finley Bell, in closing the discussion said that not more than one half dozen irrigations had been given during the acute attack of August and September of 1909, and that in most of the attempts it had been difficult to get the tube in the rectum more than six inches. Nothing had been said in regard to the vesical irritation which was a prominent symptom of the case. He believed that the accumulated feces corresponding to the distorted and dilated sigmoid in this child caused the bladder irritation, which always improved on a successful emptying of the gut. He said that it could scarcely be expected that this deformity could be eliminated by the growth of the child. Likewise the result of a sigmoidpexy might be somewhat in doubt. From the statements made by those who had discussed the case it seemed quite evident that they would have to depend on such remedial measures as were from time to time offered until the case progressed further or more cases of a similar nature were under observation.

RETROSPECT OF CURRENT PEDIATRIC LITERATURE.

Diseases of the Nervous System in Children

Under the Charge of

ARTHUR WILLARD FAIRBANKS, A. M., M. D.

First Assistant Physician, Department for Nervous Diseases, Boston City Hospital;
Assistant Physician for Nervous Diseases, Boston Children's Hospital;
Consulting Physician to the Perkins Institution for the Blind
and the Boston Children's Aid Society.

Cretinism.—In a critical review of the subject of cretinism Ducoste* expresses the opinion that endemic cretinism is closely related to the so called conditions of degeneracy and that in regions where it is endemic, the inhabitants, whether or not inflicted with cretinism itself, often present pronounced stigmata of degeneracy, physical and intellectual. He lays great stress upon the necessity of recognition and consideration of the atypical forms. The review is divided into three divisions: the first comprising a study of the literature, and a discussion of the older confusion of cretinism and idiocy. This portion of the review is of historical rather than of practical interest, so also are the paragraphs devoted to the theories of the nature of cretinism previous to the discovery of the influence of the thyroid function. The localization of endemic cretinism is given in considerable detail for continental Europe but very incompletely for England and North America, merely mentioning that the condition is rare in the latter regions. It is very evident that the author has made no extensive search for Anglo-Saxon literature on the subject.

He points out the close relationship between cretinism and goitre and believes that as epidemics of the latter disease occur only in regions afflicted with both endemic goitre and endemic cretinism, the etiological factor is probably the same.

Both goitre and cretinism, while more prevalent in mountainous regions, may nevertheless occur at any altitude, on the plains, in towns and cities, even in one particular street of a town, and in all races. The question of the antiquity of the affection is most interesting.

The author finds no authentic literary evidence of cretinism until very late in the Christian Era, but finds that Juvenal mentions the existence of goitre, and that Polybe mentions that the soldiers of Hannibal contracted goitre of the Tarentaise, while Strabon relates that the disease was prevalent in the mountains of the Cisalpine region, this carrying the prevalence of thyroid affections back more than twenty centuries. Ducoste believes therefore that the inference is justified even in the absence of positive documentary evidence, that cretinism also existed in the Alpine region before the Christian Era. He quotes Felix Regnault to the effect that the Ancients made images of the god "Bes" of which the massiveness of form and the general attributes made it the "God of the myxoedematous" Ducoste suggests that it must have been endemic to be so common. The earlier authors ascribed the cause of goitre and cretinism to drinking water, which was also the popular idea. It was however in the nineteenth century that the disease seems to have first received widespread attention and numerous commissions were formed to study the problem. Many of the statistics of this period can hardly be said to have much value on account of the unfortunate confusion of idiocy and cretinism. It is probable also that many other conditions were included in the category, such as achondroplasia, infantilism, etc.

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*Maurice Ducoste: Le Certinism: Revue de Psychiatrie Nov. 1191.

While many cretins live to old age Wagner found that the mortality among children is very high, from 8 to 13 years 23.3% against 9.6% among non cretinous children.

Apropos of the belief of older writers that cretins were less susceptible to infections than ordinary individuals, and that variola seems to have been less prevalent among them during the epidemics of olden times and even tuberculosis less virulent, Ducoste remarks that without doubting such immunity he can assert that cretinism is no protection against syphilis, and cites a large village which he visited that had been widely infected with syphilis by two syphilitic girls from elsewhere. The disease within a few months became widespread among all classes of the population, notwithstanding the prevalence of cretinism among the lower classes.

Insanity is apparently not common among cretins. In one asylum investigated containing many goitre cases, only one well marked cretins and a dozen cretinoid individuals were found. Several other asylums although serving districts in which cretinism abounded, only contained a few cases. He believes however that goitrous states are susceptible to psychoses, and cites the large number of goitre cases in the asylums. It seems a bit unfortunate that this comprehensive review should not have been confined to myxoedema alone. Much space is devoted to goitre throughout the article. In the light of our present knowledge it is hardly necessary to review the results of thyroid treatment for cretinism. The author is strongly inclined to attribute an etiological factor to drinking water, which he suggests may be contaminated by a parasite indigenous to the chestnut tree, and asserts that inhabitants deriving their drinking water from brooks below chestnut groves are afflicted while those living upstream from such groves are not affected, and he believes the disease has been eliminated in regions where the chestnut tree has been eradicated.

Such suggestions will appear to the average reader somewhat absurd, seeing as he does only an occasional sporadic case, but in the regions of which the writer is speaking the ravages of the disease are so widespread and so serious that the consideration of every possible factor should perhaps be regarded with leniency even when apparently untenable. This division of the article closes with a discussion of the sociological aspects of cretins and the provisions made for them by the government.

Infectious Diseases

Under the Charge of

ST. GEO. T. GRINNAN, M. D.

Chief of Clinic in Practice of Medicine, Medical College of Virginia; Visiting Pediatrist, Memorial Hospital, Richmond, Va.

German Measles—Measles Proper and Scarlet Fever.—Dr. H. W. Hill (*The Northwest Lancet*, July 15, 1911) says that the recent epidemic of German measles in Minnesota has been very instructive and has produced great confusion in the minds of the laity concerning the identity or non identity of these two diseases. Much mild scarlet fever was found to exist, while the fourth disease (Duke's Disease) came into the question.

Dr. Hill regards with some humor the extraordinary statement of the Illinois Board of Health Monthly Bulletin (No. 2, Feb., 1911, p. 11) that "Duke's disease is a name given to mild cases of scarlet fever, which occurred in Chicago in Jan., 1907."

In approaching a diagnosis of a condition characterized by a rash and should have in mind the following possibilities: (1) frank scarlet fever; (2) mild scarlet fever; (3) frank measles proper; (4) mild measles proper; (5) severe German measles; (6) ordinary German measles; (7) Duke's disease measles type; (8) Duke's disease, scarlatinal type; (9) small pox (in the earliest stage of eruption.)

It is presumed that drug rashes, prodromal rashes of certain types of the exanthemata, shellfish, strawberry and such stomach disorders causing rashes have been eliminated. In many cases a diagnosis at an early stage is a prognostic guess, as at that time all of the evidence is not in and a diagnosis cannot be made. As pointed out by Dr. Hill in so many cases the physician sees the case only in the early stages and for a few minutes and no real diagnosis can be made.

Light cases of German measles can hardly be recognized, as the physician does not see such cases often enough to become familiar with them and severe cases of German measles are rare. Dr. Hill suggests watchfulness for the alleged fourth or Duke's disease.

There are no absolute pathognomonic signs for mild forms of scarlet fever. Shrewd judgment and isolation until recovery or actual diagnosis is made is the best solution of the difficulty. A careful man, anxious to prevent the spread of infection will recognize the undoubted existence of and search carefully for evidence of "abortive cases" of scarlet fever amongst all exposed to frank cases, and will regard with suspicion all cases showing prodromes, throat and tongue, regardless of the presence of rash.

Securing a history of previous attacks of scarlet fever in the same person is of great value. The same statements apply to measles, except that Koplik's spots are accepted as pathognomonic. The Koplik's spots exist in the prodromal stage and are not easy to define in the later stage of the disease, hence, unless mild cases of measles are seen very early they cannot be recognized on the basis of Koplik's spots alone. In measles, previous attacks must be considered as well as exposure.

The distinction between light measles proper and German measles can be made through the presence or absence of Koplik's spots, if the patient is seen at the right time.

Duke's disease may be described as German measles in which the rash is scarlet uniform rather than "measley." Dr. Hill finds that authorities are divided on the question of the existence of Duke's disease as a distinct entity. Alleged Duke's disease accompanied by prodromes throat and tongue of scarlet fever cannot be safely regarded as other than scarlet fever and such a diagnosis while not always correct is the only diagnosis that is proper, especially when frank scarlet fever exists in the neighborhood and there is a history of exposure. A case which is clinically German measles with a history of exposure to German measles need not be diagnosed as scarlet fever merely because the rash is scarlatiniform, instead of resembling measles. Such a case may be called Duke's disease. Dr. Hill regards the measley type of Duke's disease as simply German measles—German measles and measles proper—as shown to be quite as distinct as chicken pox and small pox. The following statements seem to cover this point.

1. Measles proper protects against a subsequent attack of measles proper as a rule. Measles proper has occurred more than once in the same person, but undoubtedly in many instances of the dual attack one of the attacks has been measles proper and the other German measles.
2. Scarlet fever protects against scarlet fever, although dual attacks of scarlet fever have occurred.
3. German measles protects against German measles, satisfactory evidence as to dual attacks not existing, although it is likely that they occasionally occur.
4. The study that has been indicates that Duke's disease protects against itself but that evidence is scant.
5. No one of the diseases—scarlet fever, measles proper, or German measles protects against either of the other two. The evidence concerning Duke's disease is scant, but it appears that it does not protect against scarlet fever or measles or vice versa—whether it protects against German measles is not astablished.

It is seen therefore that the diagnosis between German measles and measles proper is of the greatest importance.

If the family should be presented with a record to be used as evidence, it would be valuable in public health data. Schools should require from their pupils a list of the diseases they have suffered from, to which list may be added new infections as they occur.

Measles is as important a disease as scarlet fever. In Great Britain measles causes three times as many deaths as scarlet fever.

Acute Poliomyelitis: Remarks on the Diagnosis.—It would not be amiss, says D'Orsay Hecht, Chicago, (*Interstate Medical Journal*, December), for our medical chroniclers to restate a large part of the matter descriptive of acute poliomyelitis. The close scientific study of recent epidemics, aided by the accession of new facts from the research laboratories, makes a revaluation of the clinical picture of the disease imperative. It is important, says Hecht, to know that the paralysis is invariably one of muscle groups, that it is flaccid, frankly symmetrical, and followed by atrophy of the affected muscles. An atypical form of poliomyelitis is the meningeal form. The disease is not infrequently ushered in under the guise of an acute meningitis closely simulating the cerebro-spinal form with headache, photophobia, neck rigidity, ophisthotonus and convulsions, and examination of the spinal cord is often necessary to clear up the diagnosis. In the majority of cases of poliomyelitis during the initial stage, and even for weeks after the onset, the fluid will be found increased, released under pressure, perfectly clear, and absolutely sterile. This negative character of the fluid is in such marked contrast to the spinal fluid in other forms of meningitis as to be of distinct value in differential diagnosis.

Surgical Diseases of Childhood

Under the Charge of

WILLIAM A. EDWARDS, A. M., M. D.

Professor of Pediatrics, University of California, Los Angeles, Cal.

Suppurating Ovarian Cyst in Girl Aged 10 Years.—Eighteen months previously the child was admitted to the hospital with abdominal pain thought to be due to tuberculous peritonitis; apparently recovered. Readmitted with symptoms of appendicitis—operation through right rectus. Removed an enlarged appendix adherent to brim of pelvis, which contained pus. Intestines were plastered over pelvis so no examination was made of the pelvic viscera. For a few days was apparently convalescing, the temperature rose, pus and albumin reappeared in the urine. An examination was then made under anaesthesia. The finger in the vagina discovered the rounded end of two hairpins the points of which were firmly imbeded in Douglas's pouch. These were removed, but temperature did not become normal. Then the abdomen was opened in the middle line. After tedious dissection a dark rounded swelling was discovered immediately behind the bladder, and adherent on all sides to the intestines. The suppurating cyst was carefully removed. Wound was drained and patient made uninterrupted recovery. Three years later she was reopened to correct bulging of the wound in the right iliac fossa which caused her pain and discomfort. A portion of the intestine was adherent to the scar at one spot, and a tag of omentum to the site of the appendix, but beyond this there were no adhesions anywhere in the abdomen. Since this last operation the child has been in perfect health. The case is interesting because of the rarity of ovarian cysts in children and because of the difficulty in diagnosis. It is further interesting to the reviewer, in that it again demonstrates that obliterating adhesions within the peritoneal cavity will often disappear as in this case. When the child was first opened the adhesions were dense, widely distributed and fully organized at the last operation they had disappeared except at two small points, just over the rectus scar and at the site of the appendix . The reviewer has seen this occur a number of times.

Peterson presents a careful report of the case together with a full bibliography of 58 cases of ovarian cysts in children (not including dermoids) in the *British Journal of Children's Diseases*, Vol. VIII, No. 91, July.

Adenoids in School Children and Their Effect on the General System —Too much attention cannot be called to this subject, as Taylor says in the *Medical Record*, February 17, 1912. An incalculable number of individuals at this present moment are useful members of society, who, but for the removal of the growths would become permanently deaf, and would have suffered great inconvenience and discomfort.

A warm climate seems to be less favorable to this development than a cold one. At the Equator when it is dry and mountainous 5 out of 717 school children were found to have adenoids; in Greenland 16 out of 60 Esquimanx children between the ages of four and twelve were found to be free from adenoids.

Ninety per cent. of the children who have enlarged tonsils also have adenoids, but adenoids are frequently present without enlarged tonsils.

Examination of 13,458 school children in Chicago showed that 5,826, about 42 per cent. had adenoids.

Adenoids are responsible for 88 per cent. of deafness. In 90 per cent. of adenoid vegetation there is involvement of the eustachian tube.

If the deafness occurs before the child has learned to talk he will remain dumb.

There is no faculty upon which mental development is dependent to such an extent as upon speech. The aprosexia resulting from adenoids is probably responsible for more cases of backward and deviated mental development than any other cause.

The hypoplastic child, fundamentally unstable, and still further handicapped by adenoids, with their allotted train of evils, is prone to respond to an exaggerated degree to faulty enviromental influences of all kinds and requires the most careful study and attention to insure the advancement of which he is frequently capable.

The removal of the adnoids is not sufficient, in cases of marked defect, to bring about restoration to the normal; special training and the amelioration of the underlying hypoplastic conditions are necessary.

The Care of the Crippled and Rachitic in Italy.—Douglas C. McMurtie, New York, describes the methods of caring for cripples in Italy, especially for the rachitic cases, which are very frequent in that country. There are a number of institutions in connection with the public schools in which children are treated for their deformities by the best modern methods, at the same time that they learn those things which will best fit them for earning their living. There is also given instruction as to how to prevent rickets by proper feeding. The institutions for the treatment of orthopedic deformities of all kinds are also described. The first industrial home for rachitis was endowed in Milan. Great interest is taken in the cripple and many suggestive methods for his treatment and education have been inaugurated. The treatment is given at a very early stage, before the beginning of school age, and this is a great advantage to the rachitic, better results being obtained in the correction of the deformities on this account. Preventive methods are also employed.—*Medical Record*, December 16, 1911.

The Infant's Stomach and Its Surgery.—(Philadelphia, Pediatric Society, April, 1911, *British Journal of Children's Diseases*, Vol. VIII, No. 91). Dr. Edward B. Hodge described the surgery of the infant's stomach. He said that the field was narrow, owing to the influence of the age—under two years. That practically exempted the infant from many diseases and injuries and greatly increased the difficulty in eliciting signs and symptoms of those that did occur. Hence, injuries of the stomach, perforating gastric and duodenal ulcers, etc., need only be mentioned. *Foreign bodies*, in the infant's stomach followed closely the symptomatology and treatment, usually conservative, seen in older children. The same might be said of *cicatricial contraction* of the *oesophagus*. Gastrostomy was of more value when preformed earlier than was usually the case

Congenitial obstruction of the oesophagus was very rare and generally fatal in spite of gastrostomy.

Infantile Stenosis of the Pylorus.—The surgeon should be called in consultation earlier in order to obtain a more favorable time for operation. Recent statistics of gastro-jejunostomy were much more favorable than those up to a few years ago. With Scudder, he believed the operation indicated no failure of efficient medical treatment in the cases of stenosis with pyloric tumor. If tumor was not present, the operator's individual experience would make him decide between gastro-jejunostomy and some form of pyloroplasty, preferably that of Nicoll. Scudder's recent paper was of great interest on the questions of persistence of the pyloric tumor after operation, permanence of the stoma, and the practically normal fat and proteid metabolism found.

At the same meeting Dr. J. Claxton Gittings described the shape and position of the infant's stomach as seen in frozen sections, exhibiting a series of bodies. From a study of hardened bodies of infants under one year of age, and from consideration of the embryonic and anatomical development of the abdomen and its contents, Dr. Gittings believed that the shape and position of the stomach of young infants varied considerably from those of adult life. His conclusions were as follows: (1) The stomach in healthy, well-nourished infants under one year occupies a more horizontal position than in adults. (2) The cardia is equally well fixed; (3) The pylorus lies nearer the mid-line and is less movable; (4) The stomach often lies entirely to the felt of the mid-line; at most but 1–3 cm. of the vestibule (or antrum) and the pyloric canal lie to the right of the mid-line; (5) The most horizontal position of the stomach is the vestibule; (6) The greater curvature for approximately one half of its length is more or less horizontal, and does not show any marked tendency to become vertical until it has passed well up under the left costal arch; (7) The lesser curvature is much more oblique than vertical; (8) The lowest pole of the stomach probably rarely descends lower than 2–4 cm. below the pylorus and probably never below the umbilicus; (9) The most important factors which determine the obliquity of the lesser curvature are the breadth of the upper abdomen, the width and oblique lower border of the liver, and the larger volume of the liver; (10) The most important factor which determines the position of the greater curvature is the more or less fixed, transverse or slightly convex position of the colon and mesocolon, which is induced by the crowding of the coils of small intestine and by the presence in the lower abdomen of viscera which belong, and later are contained in the cavity of the true pelvis; (11) The most important single factor in altering these conditions is the assumption of the erect position; (12) The shape and position of the stomach play an inconspicuous *role* in the causation of vomiting. Since the full or partly filled stomach is not tubular, the time-honored explanation of the frequency of vomiting in sucklings is not applicable; (13) Defective valvular action at the cardiac orifice probably plays an equally unimportant *role* in the causation of vomiting; (14) X-ray examination is the only reliable means of determining the lower border of the stomach *in vivo.*

Edebohl's Operation.—Dr. E. B. Hodge showed before the Philadelphia Pediatric Society, the kidneys from a girl of eight years, removed at autopsy six weeks after a second double decapsulation. The patient was exhibited before the Society nearly two years after the primary operation, in good health, with no albumen ar casts in the urine. Six months later, following bronchitis, edema reappeared with albumen and casts. She recovered from this and several similar attacks, but spent about nine months of 1910 in hospitals, the last four months continuously in the Children's Hospital. As she was losing ground steadily, in spite of the care and attention of Dr. Griffith and Gittings, double decapsulation was preformed the second time on December 1, 1910. The main clinical facts before operation were high grade edema, low urinary output (the daily average being four ounces), and lack of uremic symptoms. After operation the edema subsided, to eturn in less degree in ten days, accompanied by ascites. The patient was more comfortable and the amount of urine larger, but never free from albumin or casts. At operation the fatty capsule stripped off easily, showing a condensed inner fibrous surface. No definite fibrous capsule could be demonstrated, even on incision of the cortex in several places in each kidney, although the primary operation was done nearly two and a half years ago. Dr. C. Y. White reported that the microscope showed no definite capsule. There was, however, a two-thirds fibrous tissue cell layer, probably newly formed capsule. The specimens showed marked chronic parenchamatous nephritis. The left kidney weighed 154, the right 70 grammes.

Dr. E. E. Graham said that in 1905 he had collected eleven cases of decapsulation of the kidneys in children for nephritis. In only one had decapsulation of both kidneys been done a second time; in a boy of ten years with chronic nephritis. He did well for twenty-one months after operation; the second operation did little if any good. There was no report of death or recovery of this case. A careful study of these cases showed that if the illness was acute or subacute, rapid improvement might follow decapsulation. Most of the reported cases occurred in hospitals, and it was difficult to continue the proper treatment after the child left the institution. Dr. Graham's patient always improved after returning to the hospital. Many operators believed that a decapsulated kidney became enveloped in a much thicker capsule than existed previous to the decapsulation, from three to four months after the operation; this appearently did not occur in Dr. Hodge's case. Of the eleven cases five died and four probably recovered; two showed no improvement. All would probably have died without operation.

Dr. A. A. Eshner asked whether Dr. Hodge believed that the operation prolonged the life of this patient.

Dr. Hodge answered that the first operation was undoubtedly life-saving. She remained well for over two years afterwards. The second operation was not successful. In well selected acute cases the operation was certainly indicated. The child, while well in the hospital, grew worse every time she returned home. Dr. Hodge knew two other children upon whom the operation was done successfully, who kept well for five and six years after the operation. The patient was even without albumin and casts for some time. —*British Journal Children's Diseases*, July, 1911.

Orthopedic Surgery

Under the Charge of

JAMES K. YOUNG, M. D.

Professor Orthopedic Surgery, Philadelphia Polyclinic, Clinical Professor Orthopedic Surgery, Woman's Med. College, Pa.

Our Present Knowledge in Regard to Infantile Paralysis, by R. Tunstall Taylor, *American Journal of Surgery*, November. 1911.

While infantile paralysis is an "old disease," yet knowledge of its epidemic nature and its contagiousness is of recent date. The virus has not yet been isolated. Flexner is inclined to believe that it gains access to the cerebro-spinal axis by means of the nasal mucous membranes and the lymphatics through the cribriform plate of the ethmoid. A possible mode of infection is also through the gastro-intestinal tract. Isolation of cases is strongly urged.

Pathologically the disease is a meningo-encephalogelitis rather than an anterior poliomyelitis, although the cord usually suffers the more severely. It is essentially a disease of the summer and early fall.

There may be premonitory symptoms several days before the onset of acute symptoms. The former consist of rigidity of neck and spine, Kernig's sign, increased knee reflex. The symptoms of the acute attack are divided into cerebral, bulbar, spinal, and neuritic; convulsions, delirium, drowsiness; respiratory distress; paralysis of body and limbs; pain in extremities. In addition there are fever, nausea and vomiting, constipation, retention of urine.

The paralyses are enumerated in their order of frequency, together with the resulting deformities.

The treatment in the acute stage is symptomatic, but the child should be kept in such a position in bed that no deformities may result from posture in pressure of bed clothes on the feet. Later massage and electricity and passive movements are useful to maintain the nutrition of the weakened in paralyzed muscles. Proper apparatus then follows to permit the child to walk without the production of deformities.

The operative precedures are discussed; tenotomy, myotomy, tendon transplantation, muscle transplantation, tendon shortening and tendon lengthening, arthrodesis, tenodesis, astrogalectomy, osteotomy and nerve anastomosis or grafting. Aside from the first two mentioned procedures, the transference of a tendon direct to a new periosteal insertion or by means of silk lengthening appears at present to give the most satisfactory results.

Surgical Treatment of Infantile Paralysis, by John R. Parry, *Canadian Practitioner and Review*, Dec., 1911. The first essential in the surgical treatment of infantile paralysis is the prevention of deformities. After this come procedures that aim to restore muscular power make more stable the limbs. Paralyzed muscles must be kept relaxed during all stages of treatment.

When the acute and painful stage of the disease is past, the nerves and muscles must be stimulated by massage, electricity, baths and muscle training (active and passive movements). In paralysis of the lower limbs the patient should be put, as soon as possible in walking instruments. Practically every paralytic can be taught to walk. Tendon transference is useful in selected cases.

The author then considers in detail the different useful procedures that may be employed in various paralysis of the upper and the lower extremities.

Congenital Dislocation of the Hip, by H. F. Graham, *Long Island Medical Journal*, Oct., 1911. The case was presented before the Brooklyn Surgical Society. The patient was six weeks old when first seen. The left hip joint was found to be dislocated, and a large ventral hernia was present in the right lower abdomen. The dislocation was reduced by manipulation and reduction was maintained by a plaster cast with a cross bar across the back. The cast was removed at the end of five or six weeks.

The Origin of Torticollis: Illustration of a Case Showing Professional Dyskinesia, by T. A. Williams, *New Orleans Medical and Surgical Journal*, Jan., 1912. The author believes the origin of torticollis to be purely psychogenic in the vast majority of cases, and not due to diseases of lower neuroses. Section of the spinal accessory nerve is inefficacious because not only the stemo-cleido-mastoid and trapezins muscles are involved, but all the muscles of one side of the neck participate in the torticollis. He then recites the history of a case of a woman who is an expert counter in the U. S. A. Treasury. She presented herself because she was unable to use her right arm, since each motion of the arm caused the head to turn to the right with a powerful force over which she said she had no control. Three months before the beginning of this tic she had had a serious altercation with a woman who works in the same office. This had worried her constantly and had made her bitter and brooding. Her enemy sits behind her on her right, and the patient's thoughts of her enemy caused her head to turn unconsciously around in that direction, while her hands continued to do their work. Later, by a process of psychological substitution, the turning of the head became associated with the use of the right hand; and eventually the muscles of the neck and shoulder became maintained more or less constantly in a state of contraction owing to her automatic desire to turn her head and her conscious efforts not to do so.

Joint Infections, by Chas. Ogilvy, *New York, Medical Journal*, Dec. 2, 1911. The author suggests the following classification of joint infections: (1) Chronic; tuberculous, syphilitic, typhoidal. (2) Acute; streptococcal, staphylococcal, gonorrhoeal, pneumococcal, influenzal, bacillus dysentencus, acute articular rheumatism, etc. He discusses the symptoms and the diagnosisof the infections due to these various causes, and summarizes in part as follows: joint inflammations without infections must be differentiated from those with infectious. Joints are subject to the same infections as are other tissues of the body, but these infections are almost always secondary to a primary focus elsewhere in the body. The infectious organism may or may not be found in the joint, and the toxines of the organism alone frequently cause joint inflammation. The most important factor in the diagnosis is to determine the source of infection. A correct early diagnosis is very important.

Tuberculous Disease of the Knee Joint, by J. B. Richardison, M.D. *The American Practitioner and News*, Oct., 1911. Tuberculosis of the knee joint may begin in the femur, the tibia, the patella, or the synocial membrane. It occurs usually in children, but frequently also in adolescence and adult life. Limitation of motion in the direction of full extension is the all important symptom on which to base an early diagnosis. This gives rise to flexion deformity, and the deformity, in turn, to a limp. Change in the contour of the joint appears, and is due to effusion into the joint cavity or thickening of the tissues about the joint. The circumference of the knee becomes larger and there is atrophy of the thigh and leg. The X-ray is not an accurate means of early diagnosis. The deformity gradually becomes more marked, marked rigidity, increased flexion, outward or inward rotation of the tibia; backwards displacement. Abscess and sinus formation follow sooner or later.

It must differentiated from injury to the knee, acute articular rheumatism, gonorrheal arthritis, osteo-arthritis; hemophilia, sarcoma. The earlier in the disease correct treatment is applied, the better is the result; and if the diagnosis is in doubt, the case should be treated as tuberculosis. A plaster of Paris dressing, including the upper thigh and the foot, is the most useful method of treatment. Deformity may be cured gradually by frequent changing of the plaster dressing, or by extension in bed; or tenotomy of the tendon and forcible stretching may be necessary. The Thomas knee splint may be used in convalescence. Abscesses should be aspinated, if possible; if not, a small incision may be made, the contents of the joints evacuated, and the incision sutured. Bier's treatment by hyperemia is useful. Arthectomy or amputation are means of last resort. The fifty per cent. of cures reported in text books is too high an estimate.

Diseases of the Skin and Uro-Genital System

Under the Charge of

EBERHARD WILLIAM DITTRICH, M. D.

Instructor of Diseases of the Skin, New York Post Graduate School and Hospital. Dermatologist, German Odd Fellows' Home and Orphan Asylum; Dermatologist Northwestern Dispensary; Ass't Surgeon, New York German Hospital Dispensary, Urology.

Purpura in Acute Infective Diarrhea in Infants.—Dr. Rolleston and Dr. B. J. de W. Molony, Royal Society of Medicine, Section for the Study of Diseases in Children. (*The Lancet*, London, Nov. 24, 1911). Dr. Rolleston and B. J. de W. Molony communicated a paper on purpura in acute infective diarrhea in infants. .From an analysis of 100 cases of acute diarrhea sufficiently severe to be admitted to the Victoria Hospital for Children, it was found that purpura occurred in 11, all of which were fatal; the prognosis of these cases was therefore extremely grave. In eight of the eleven cases the purpura was on the abdomen; possibly the extremely low blood pressure and the horizontal position of the patients explained why the purpura occurred rather on the trunk than on the limbs. The purpura occurred on an average on the 34th day of the diarrheal disease and seven days before death; purpura was therefore a late and cachectic manifestation in diarrhea of infants. The purpura was not caused by transfusion or by the use of serums.

Eruption caused by the Absorption from a Belladonna Plaster and from the Ocular Instillation of Atropine.—Dr. Knowles, *American Journal of Medical Sciences*, July, 1911. The author reports on this interesting subject as follows:

1. More of less generalized eruptions not only occur from the internal adminstration of belladonna or its alkaloids, atropine, but also from absorption through the skin of local applications of the same.
2. The skin does not have to be broken or denuded of epidermis for absorption to take place; the symptoms of poisoning, however, develop much sooner if such is the case.
3. The great majority of cases exhibit an erythematous or scarlatinal type of eruption, which is more frequently found on the face and the upper portion of the body, but in a fair number of cases the outbreak is generalized. Gangrenous, purpuric, and eczematous eruptions have been reported. The author describes a unique or at least a very unusual type of outbreak.
4. Although in a great many instances severe symptoms of poisoning are present, the eruption may be unaccompanied by other manifestations of drug absorption.
5. Mydriasis is a quite constant phenomenon; in a few cases, however, the pupils were only slightly enlarged, entirely normal, or unilaterally dilated.
6. The prognosis is favorable; only one death occured in a large series of cases.
7. Belladonna or atropine may produce a local eruption from the local irritant effect.

Syphilis as a Factor in the Abnormal Development of Children.—Dr. Eberhard W. Dittrich, *Journal of Obstetrics and Diseases of Women*, Vol. LXV, No. 1, 1912. Read before the second annual Conference of the National Association for the Study and Education of Exceptional Children. Dec. 2, 1911. The statement made by one of the previous speakers before this Society that "Syphilis is not a factor of great importance in the exceptional development of children" prompted the author to compile such conditions that interfere with educational efforts, which are due directly or indirectly to the hereditary transmission of syphilis. While tuberculosis does not seem too highly instrumental in producing such dire effects (contrary to the former general assumption), alcholism and syphilis occupy the first rank in this connection, in the opinion of the author. As hereditary, congenitally and later acquired syphilis is similar in their ultimate effects on children and adolescents, it may sooner or later result in constitutional disturbances, such as interference with nutrition, bone formation and development of the brain; these various detrimental effects of hereditary syphilis, chiefly, forming the topic of this consideration.

Author explains the different ways in which a child may contract syphilis referring also to the meaning of the term "Syphilis Insontium or Syphilis of the Innocent." As a basis for his consideration he takes a scheme laid out by Fournier in his "Resherches et Diagnostic de l'Heredo-syphilis." He mentioned all the possible consequences of hereditary communications, which are liable to interfere with nutrition of the brain, or instrumental in the production of developmental errors of other organs, and such derangements of the nervous system that in many cases can be traced back to a syphilitic taint. The habitus and the countenance of the syphilitic child may be characteristic in the presence of other lesions.

Their dullness of expression, pallor and poor nutrition stands in direct contrast to children of a scrofulous diethesis with their precocious intelligence. Growth may be arrested so that they walk and talk late, and the arrival of the signs of puberty may be retarded; a monstrous obesity is also one of the signs quoted by Fournier, which should give rise to suspicion. Deformities of the bones of the skull (natiform and boat shaped) are striking and are conditions that are liable to retard the growth of the brain. Hydrocephalus should always be viewed guardedly, as it may be of syphilitic origin. The significance of deformities of the nose, as the two varieties of saddle nose and the so-called nez-en-lorgnette is discussed as to its relation to a syphilitic taint, together with all phases of hereditary syphilis of the internal, nose palate and of the auditory apparatus.

The author then goes into a description of the triad of Hutchinson and especially into a description of the part the permanent teeth play in it. Sabre leg (curved forward like the anterior aspect of a curved sword) are mentioned in this connection, but while bow legs, sunken-in chests, beaded ribs, which all may be found in hereditary sphyilitics, may be due to the latter disease, but they are more likely to be a manifestation of rickets. They may appear in the hereditary syphilitic, owing to the fact that rickets like to develop on a syphilitic soil or vice versa.

Convulsions, meningeal involvement, incontinence of urine, disturbances in pronunciation and stuttering, spasms of the facial muscles and other nervous disturbances are frequently found in members of families of undoubted syphilitic history. General nervousness, epilepsy, hysteria and certain paralyses including general progressive paralysis are considered likewise in this connection. Impairment of the intelectual faculties, feeblemindedness, imbecility and idiocy also occur in these children.

The author concludes with the plea for a control of venereal diseases by the boards of health, that health certificates should be compulsory for those desiring to marry (both parties) and advocates public lectures showing the dangers of promiscuous sexual intercourse.

Recent Progress in Genito-Urinary Surgery.—Drs. Francis S. Watson and Paul Thorndike, Boston. (*The Boston Medical and Surgical Journal*, Dec., 7, 1911). Among other subjects in an elaborate article on the above theme the authors call our attention to syphilis of the bladder. As this condition is one which we might not be able to diagnose on account of the resemblance of its symptoms to other disturbances, it may be of interest to recapitulate what they have to say on the subject.

Engleman reports three cases of gumma of the bladder. Such cases up to the present time have been very rare, but now are occasionally reported as the result of cystoscopic findings. The cases in question gave histories of infection dating back many years. Hemmorhage was chief symptom and in one of the three cases was complicated with an acute cystitis. In the other two cases there were tumor-like growths surrounded by areas of inflammation in the region of a ureter. In one of the three cases there was an involvement of the spinal cord, but in the other two there was no other manifestations of the disease. All three cases responded to a treatment of Mercury and the iodides and the ulcers healed quickly.

Ash reports three more cases of true bladder syphilis and states that these rare affections of the bladder seldom have specific characteristics and their true nature may be unsuspected. Gummas often simulate papillomas and Ash suggests that this fact be borne in mind whenever a case of papilloma of the bladder is seen. He advises general specific treatment but no local measures. This is followed by an excellent summary of recent publications on the subject of syphilis of the bladder.

The Lymphatics of the Scrotum.—Dr. John Morley, and Dr. Ch. M. Manch, Manchester. (*The Lancet*, London, Dec., 2, 1911). The authors arrive at the following practical conclusions: 1, In consequence of the very free anastomosis between the superficial lymphatic network of opposite sides, it is obvious that whenever an epithelioma approaches the median raphe the glands of both groins must be removed. 2, In view of the termination of the medial trunks from the anterior surface in the supero-external glands, it is important that, when a growth approaches the anterior raphe, the subcutaneous tissue and glands should be removed to within one inch of the anterior superior spine of the ilium. He has seen recently a case in which a very determined attempt at a radical operation failed because the surgeon had not carried his dissection far enough in an outward direction. Recurrence took place within nine weeks of the operation in the extreme outer angle of the incision. 3, It is essential to remove the superficial inguinal glands and subcutaneous tissue in which they lie, from practically the whole of Scarpa's triangle and to carry the upper limits of the dissection well above the inner half of Poupart's ligament. To clear the triangle efficiently the upper three inches (7.5 cm) of the internal saphenous vein must be excised and the femoral sheath stripped clean. Many surgeons, will consider it their duty to aim at the ideal of complete removal of all possible malignant cells, here as elsewhere, and attention to the above description should provide the necessary anatomical data for an early case. It will rarely be possible after such an operation to bring the skin completely together. As far as the necessarily denuded root of the penis is concerned, it will be possible to cover it in the uncircumcised by incising the prepuce on the dorsum if there should be a tendency to phimosis) and utilizing the additional skin gained by its retraction. Apart from this skin grafting would be required.

BOOK REVIEW.

Studies in Character Building, a book for parents, by Mrs. E. E. Kellogg, A.M. Author of "Science in the Kitchen," "A Talk with Girls," etc. Cloth binding, 370 pages. Battle Creek, Michigan, Good Health Publishing Company.

This volume has been the out-growth of a work begun some sixteen years ago by the author and comprises the epitome of studies and lectures given by Mrs. Kellogg in the Haskell Home Training School. The ideas presented are not offered as altogether new, for this is a subject that has occupied the attention of sages from the days of Moses and Solomon down to our modern psychologists. Mrs. Kellogg has aimed to gather from reliable sources the best ideas of the deepest thinkers, and to glean from the experience of others, as well as from her own, such thoughts and methods as have proved most helpful in cultivating and developing the essential elements of true character; and to bring them together in a convenient form for the use of mothers and teachers, who would appreciate just such help as is contained in this volume. It is well worth the most studious and careful attention of every mother and governess, who have the rearing and bringing up of children, and as such we highly commend it.

He That is Without Sin, by Ivan Trepoff, New York, The Cosmopolitan Press 1911.

This is a live novel of New York life as it is lived in New York City to-day. The author is Professor of Surgery in a New York medical school, a professional man of wide experience, his professional work taking him among all sorts and conditions of men and women. Dr. Haubold delineates the character of the most extraordinary city that has existed since the days of antiquity; he opens the heart of the wonderful city, and with him we look down into its depths. The upper classes and the lower in this volume meet on the common ground of vice and pleasure.

This novel is not a moral text-book. It is without a sermon. It is not immoral; it is simply unmoral. And in the midst of the unmorality we come to feel (to know!) that he and that she that is without sin does not exist—at least, we are willing to say to the sinless one—Come, cast the first stone, and you may cast it at me. Seldom does a book arouse emotions so deep as does this story.

Taking his characters from the artificiality and the colorlessness of what is called the upper life, and from the joy and the sin of what so many is thought to be the lower life, Dr. Houbold paints them all as he sees them. His canvas is New York City, with much wickedness in high places and in low, and with much goodness everywhere.

Health and Medical Inspection of School Children. By Walter S. Cornell, M.D. Director of Medical Inspection of Public Schools, Philadelphia; Lecturer on Child Hygiene, University of Pennsylvania; Director of Division of Medical Research, New Jersey Training School for the Feeble-minded, etc. Illustrated with 200 half-tone and line engravings, many of them original. Philadelphia. F. A. Davis Company, Publishers, 1912.

The aim of the author in the presentation of this practical work on the "Health and Medical Inspection of School Children" has been to offer a practical exposition of the work of medical inspection with the survey of medical practice relating to children of school age.

Physicians will find it invaluable because of the clear, concise explanations in the chapters devoted to the errors of refraction, the influence of nasal obstruction on the development of the dental arches, nervous disorders, and mental defects. That portion of the work dealing with the prevalence of physical and mental defects has been prepared from the official reports of medical school inspection in New York, Philadelphia and other cities, and from current medical literature. It is designed to establish standard figures which may be confidently relied upon and quoted with authority.

Dr. Cornell has had a long experience in this important line of work. He is a man of high ability professionally and has brought into this book, the results of a very wide observation of the sociological conditions which are so intimately associated with medical inspection. There is an altruistic sentiment prevalent throughout the book which must find an immediate response among all who are familiar with the tremendous handicap under which the children of the very poor are suffering.

The subject matter of a text book on this subject is necessarily scientific and philosophical rather than emotional. The author endeavors to preserve unity and plan of purposes throughout the work. Six years experience as a Chief Medical Inspector of Schools in Philadelphia has given Dr. Cornell a very wide field of observation to study children—their defects—of the eye, ear, nose, throat and teeth, particularly the mind, which may profoundly influence the general health of the child. He is an anthusiast on this subject. Society can make no investment for its future protection which will give larger returns than to show a disposition to hold out a helping hand to the under-fed children of the community, of school age. Poor nutrition and a low standard of morals go together.

Fitch's Pocket Medical Formulary. By William Edward Fitch, M.D., Editor of Pediatrics and of Gaillard's Southern Medicine; Formerly Lecturer on Surgery, Fordham University School of Medicine, Assistant Attending Gynecologist Presbyterian Hospital Dispensary, Attending Physician to the Vanderbilt Clinic College of Physicians and Surgeons, New York City, Member of American Medical Editor's Association, etc. Pocket size, 450 pages, bound in handsome limp morocco, thumb index. Price $2.00. The F. A. Davis Company, 1914 & 1916 Cherry Street, Philadelphia, Pa.

Fitch's Pocket Medical Formulary is the most carefully prepared and authoritative work of its kind extant. It embraces all the points of superiority claimed by publishers of other formularies, and in addition, the following features—some of them entirely novel. A point worthy of special menton is the clinical hints following the headings of the more important diseased conditions. Another valuable point is the double system of cross indexing, which readily facilitates rapid reference to other sections, having a corresponding relation to the disorder under consideration. A unique feature is the extensive tables of differential diagnosis of maladies most liable to be confounded. A special feature is the arrangement of diet lists for diseased conditions—which, like the differential diagnosis tables—are numbered and referred to (by the cross indexing) throughout the work.

For convenience of rapid reference, all diseased conditions are arranged in alphabetical order (in many instances)—followed by concise clinical hints —and the formulæ, which experience has proven most satisfactory. A unique and obviously valuable features of the precriptions is the indications for selecting—from among the several formulæ given under a disease—that which is exactly suited to a certain stage or complication. The prescriptions, of which there are (about) 2,000, represent the best formulæ of the most eminent physicians and surgeons of the world, the whole comprising a most reliable compendium of therapeutic experience of the highest authority. The author has introduced as many of the newer drugs as possible and arranged all to correspond with the latest revisions of the U.S. Pharmacopœia.

The work will be found especially helpful to the student and younger practitioner, as through it they will find "help over many hard places" and become acquainted with numerous excellent formulæ of distinguished practitioners of the present day. Frequent consultation of this handy little work will, "it is hoped" stimulate in the young practitioner the habit of prescribing pharmacopœial preparations rather than writing for proprietary substances of unknown composition, although of elegant appearance. The methods of treatment are in accordance with the most advanced and up-to-date practice, and their presentation is valuable for conciseness and for the emphasis laid upon the most essential features. The book bears the impress of the experienced clinician, who appreciated the needs of the general practitioner, and the "ear marks" of the accomplished clinician.

The work closes with a valuable appendix, containing formulæ and doses for hypodermic medication; an extensive posological table in both apothecary and metric systems; fractures, dislocations and sprains: Ligations of arteries: hemorrhages and wounds: treatment of asphyxia and apnœa; poisons and antidotes; incompatibilites and baths; miscellaneous emergencies; tables of eruptive fevers; and differential diagnosis; tables of diet lists for various diseases; materials and drugs used in antiseptic surgery and formulæ for fluid foods, etc.

While there is no dearth in the supply of Medical Formularies on the market at the present time, it must be admitted that none of them are without serious defects. This newest one written by an erudite scholar of considerable editorial experience aims to improve upon the shortcomings of existing formularies, and this one will justify its existence by its merits.

—*C. S. Roberts, M. D.*

Old Time Makers of Medicine. The story of the Medical Sciences during the Middle Ages. By James J. Walsh, K. C. St. G., M.D., Ph. D. Dean and Professor of the History of Medicine and of Nervous Diseases at Fordham University School of Medicine. Fordham University Press, 1911. 450 pages, Price $2.00 net. Postage 15 cents.

Until recent years most of us have known so little about the Middle Ages that we have been tempted to conclude that there must be nothing much to know. We have found however, that in architecture, in art, in literature and philosophy, the Middle Ages did surpassing work. The Gothic cathedrals, Giotto, Dante, and Aquinas are quite enough of themselves to indicate stupendous achievements.

To most people it seems that there is one dark spot in the brightness of the time—the neglect of science. The present issue of the Fordham University Press shows that this impression is quite as false as the acceptance of the idea that there was nothing worth while in the Middle Ages. We have simply been ignorant of the story of medieval science. It was especially great where often thought weakest—in its applications. Mathematics, engineering, architecture, logic and the medical sciences made magnificent achievements. Great surgeons developed their art until they were performing practically all even of our most modern operations. They discovered anesthetics, and boasted of getting union by first intention with their antiseptics. They filled teeth with gold, and various metals and otherwise anticipated our modern dentistry. Their medical education had higher standards than ours and their pure drug laws were more stringent. Leprosy was probably as common as tuberculosis is now, yet they eradicated it by sanitary regulations. Their hospitals were complete in every way and we cannot but admire —and imitate them.

It is this story of medieval science that Dr. Walsh has told in Old Time Maker of Medicine. He begins with the Early Christian medical writers, some of whom are classics and have been often reprinted in the last four hundred years. He tells the story of the Jewish physicians and how much they did especially for the medical practice. Above all the place of the Arabs in history particularly in science is shown. They were taught by the Christians and the Jews of the earlier ages, carried on science and philosophy for some centuries very well and then seriously hurt both. The story so frequently repeated that to them we owe the preservation of science and especially of the medical sciences during the Middle Ages is an absurd exaggeration due to the fact that a number of writers during the last generation or two have been only too willing to discredit Christianity by exalting the Arabs. In the latter Middle Ages comes the great university period which literally laid the foundations of our modern science deep and broad in a marvelous outburst of intellectual achievement as significant in science as in the arts and literature and education.

PEDIATRICS

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EDITORIAL

ON ECZEMA IN INFANTS

At the last meeting of the British Medical Association there was an interesting discussion as to the origin of eczema upholding to a great extent Unna's view that the disease is of parasitic origin, one authority said "that since the promulgation of Unna's ideas on eczema, unbiased, as far as possible, by the learnings of his early training. In offering a few observations on the disease in children, he said he did so because in them the problem was in a measure, free from some of the complications met with in later life. In infants and children he saw two phases of eczema. The first was the state commonly known as eczema, which began most frequently in infancy on the scalp and descended thence over the face to cover, in some instances, the greater part of the surface. The second phase consisted of dry, reddish areas, with scanty adherent scales, separating along the line of flexion, but these patches might also, when irritated, take on a vesicular form undistinguishable from the first phase. This was also a descending inflammation, beginning on the face or scalp, as a rule, which he used to call seborrhea, but that was, no doubt a bad term. This was the common affection described by Savell as epidemic among children. These phases ran into one another so much that he had constantly the greatest difficulty in separating them. In the next place he could find no cause whatever in the majority of children, for the patients were apparently in excellent health. He did not deny the influence of constitutional disturbance such as rickets or gastro-intestinal trouble in increasing the irritation and intensifying the inflammation, but the phases of eczema seemed to him to be essentially of local origin. It was possible that the future might disclose varieties caused by various parasites." The theory of parasites as a cause of eczema is rapidly gaining ground. Professor Lassar, of Berlin, scouts the idea of irritation from internal sources being a cause of eczema and points out how favorable are the skin changes in eczema to the growth of saprophytic and pathogenic micro-organisms.

ADENOID GROWTHS IN CHILDREN

These growths are responsible for more of the complaints of childhood than many people are aware of. If the child suffers from an obstinate catarrh, in nine cases out of ten on examination the cause will be found to be adenoid growths of the vault of the pharnyx, and, in fact, the majority of throat, nose and ear disease have a like origin. This has been well exemplified in the report of Dr. F. Willcocks, who was sent down recently by the City of London to inquire into the health of the children at the Hanwell Schools. He found that no less than thirty out of the eighty-two examined were suffering from adenoids. A prominent pediatrist, writing on this subject makes the following interesting remarks: "Every observer must have been struck by the curious fact that the actual amount of obstruction to nasal breathing in a child produces very varying amount of symptoms in different cases. It is not by any means rare to find a boy, and a boy oftener than a girl, I think, the picture of robust health, with perfect hearing, a fully developed thorax, no excessive tendency to cold-taking, even a good runner and foot ball player, and yet with his mouth habitually open, and his sleep broken only by his school fellows' shoes and other missles, gentle hints that he should modify his furious snoring. Such a boy is, I confess, more liable to ordinary cold-taking than he should be, and may at such times suffer from more or less deafness. Still I maintain that even these are not infrequently absent even with a remarkable quantity of adenoids. On the other hand, we know the other picture: the stooping, thin, and anemic child, undersized with contracted thorax, and deaf, always in the state of general catarrh, whether of nose, ears, or stomach, taking cold with every change of atmosphere, peevish and capricious in temper, tossing about in sleep, with voracious appetite, but easily fatigued. Such a patient may have either a large or a small amount of adenoids the amount of buccal respiration may be conspicuous or insignificant; the snoring may be habitual or only noticed when fresh cold is contracted. And yet in the latter case, irrespective of the actual quantity of growth, operation is absolutely imperative, while in the former case the only good reason for interference would be for the sake of improving the articulation; indeed, if this is not very faulty, we should not be erring, if we advise the postponing of an operation until symptoms should arise, or if the boy is sixteen or seventeen years of age, waiting to see if nature would not take the case out of our hands by inducing spontaneous atrophy of the growths in the course of the next two or three years." We agree with the author that in the first case operation is not absolutely imperative, but at the same time it appears that he has overlooked a rather important point: that even though a person be robust and healthy and has adenoids, that in the event of his contracting certain diseases, his chances of recovery are considerably prejudiced by the pesence of these growths. Patients, too, with adenoid growths are more liable to contract diphtheria. Taking all these facts into consideration as well as the comparative simplicity of the operation, the wisest course in every case of adenoid growth would seem to have them removed as quickly as possible.

TREATMENT IN CHILDREN'S DISEASES TWO HUNDRED YEARS AGO.

Nothing will give a more realistic conception of the remarkable progress which has been made in medical science within the past two hundred years than to peruse the medical works written from the middle to the end of the Seventeenth Century, and to study and compare the treatment in vogue then and now. At first sight we are apt to be overcome with the astonishment at what appears to us in these advanced days to have been the colossal ignorance of even the leading lights of the medical profession at that time, and are perhaps too liable to forget that for our present advantages we have to thank the labors of those strenuous workers who have made them possible and paved the way for the splendid discoveries of the century now passing by. Dr. Robert Reyburn, in the *Medical Record* gives an interesting and amusing account of some of the methods of treatment followed and the remedies used in certain diseases of children in or about the year 1650. For instance, Dr. Thomas Willis, an eminent physician who wrote and flourished at that period, has this to say on the treatment of epilepsy: "A man in this neighborhood had all his children dead of convulsions within three months after they were born. At length to prevent the same fate in a son of his that was new born, he thought proper to try the power of medicine. I was called to him a few days after the birth, and ordered an issue in the first place to be made in his neck, and that two ounces of blood should be drawn next day at the neck by the application of leeches. I advised, besides, that for three days, before each change of the moon, and again before the full, about five grams of the following powder should be given him morning and evening in a spoonful of the jalap: Take prepared human skull, the root of male-peony, of each one drachm, pearls in powder half a drachm, mix them all together and make a very fine powder. Take of black-cherry water three ounces, the antepileptic water of langins an ounce, syrup of the flowers of male-peony six drachms. I likewise ordered the nurse to take a draught of whey, in which the roots and seeds of male-peony and the leaves of lilly of the valley had been boiled, twice every day at the same hours." The writer goes on to say that under this treatment, supplemented by blisters applied behind the ears, and another bleeding at the jugular with leeches the child was cured of epilepsy, although at the age of seven years an indolent tumor arose at the lower part of the back bone occasioning a distortion of the vertebra and culminating in a palsey. The famous Thomas Sydenham, far ahead of his time as he was, recommended bleeding for children suffering from measles or small-pox. While the other medical writers of the time prescribed as drastic and nauseous remedies for infantile ailments as the before mentioned Dr. Thomas Willis. Children living now have every reason to congratulate themselves on having been born when they were, although, as Dr. Reyburn remarks in concluding his article: "They must have been under better discipline than ours of the present day or they never could be induced to swallow such nauseous medicines."

INTESTINAL STASIS IN CHILDREN

That condition known as intestinal stasis, more frequently termed chronic constipation, neither of which appellative by the way fully expresses the true significance of the state, a somewhat common fault of medical nomenclature is contrary to the general opinion by no means so rare in the young as it is usually imagined to be. By intestinal stasis is meant obstinate constipation, and in consequence an accumulation of material in the intestinal tract for abnormal periods of time. Children suffering from tubercular disease of the joints are especially subject to this condition. But tubercular disease is not the only legacy of intestinal stasis. As in the adult, so in the young child, but in a more intensified degree, auto-intoxication produces very grave results. According to Arbuthnot Lane, and, of course all authorities agree with him, the presence of toxic materials in the circulation diminishes the resisting power to the entry of pathogenic organisms, and this renders the sufferer a more ready victim to tubercular disease, rheumatoid arthritis and other diseases.

Colitis is an example of the more direct effect of intestinal stasis. In chronic constipation the colon is obviously in an unhealthy state and should infection, by a virulent organism occur, it readily becomes actuely influenced. In the *Practitioner*, April, 1912, Dr. L. E. Barrington writes of intestinal stasis in children with reference to operative procedures for its relief. Barrington, who is the medical superintendent of the Hospital for Sick Children, Great Ormond Street, London, takes as the text for his paper, the operation of ileo-colostomy performed at that institution by Arbuthnot Lane for the relief of intestinal stasis, mainly occurring in children afflicted with tubercular disease of the joints.

The clinical picture of intestinal toxemia in children is quite as readily, if not more readily recognized in children than in adults. Discoloration of the skin is one of the most constant signs. The skin takes on a dirty yellow brown appearance which is very marked in certain locations, as the forehead, the eyelids, the lower part of the neck and the flexure of the limbs. The circulation is sluggish, the hands and feet being generally cold and clammy. The child is apathetic, listless and wholly devoid of energy and vitality, miserable in disposition with poor appetite and ill nourished body.

At the Great Ormond Street Hospital, the custom is to obtain a radiographic evidence of the stasis by giving the patient a meal of bismuth oxycarbonate, 2-4 ounces, according to the size of the child in an emulsion with bread and milk and by taking radiograms of the abdomen at frequent intervals so long as any bismuth remained in the alimentary tract. It was found that in normal children the bismuth left the body in about 24 hours. In tubercular children presenting signs of auto-intoxication bismuth might remain in some part of the large bowel, from 70 to 160 hours. Moreover, the more typical of auto-intoxication the case was chemically, the more marked was the intestinal stasis. Lane operated on several cases for intestinal stasis, nearly all of which were children with tubercular disease of the joints, and in every case, stasis with secondary auto-intoxication was found to be present, and it was for the stasis which was believed to be the primary condition, that operative measures were undertaken. The argument is not made that if a child suffers from tubercular disease of the joints, that, as a matter of course, he has constipation, but it is contended, and this contention seems to have been established by the findings at the Great Ormond Street Hospital, that if the child does not have intestinal stasis he is progressing favorably, so far as the joint disease is concerned and vice versa. Intestinal stasis then has a profound effect on the progress of the disease, as has been shown by the much greater propensity of early rapidly advancing cases and of long standing cases to steadily go down hill which has been found to show marked auto-intoxication by the use of the method described above.

Tubercular disease of the joints, with intestinal stasis, Lane holds that ileo-colostomy is a valuable procedure. It cures the constipation and thereby greatly tends to relieve the diseased condition. The results of Lane's operations, somewhat limited in number it is true, have been almost informaly successful. After the operation, contrary to expectation, diarrhea did not supervene, the bowels were relieved regularly and naturally and with the cure of the constipation, auto-intoxication was relieved, and the child improved in every respect. If the evidence from the London hospital is to be relied on, and there is every reason to believe that the accounts are absolutely trustworthy, ileo-colostomy, for cases of intestinal stasis in children coincident with tubercular disease of the joints or some other grave disease, is to be recommended. Perhaps as yet Lane's experience has been scarcely sufficiently wide to warrant dogmatic statements, but at any rate his great reputation favors the belief that ileo-colostomy may be the means of, in many instances, relieving a condition which is the primary cause of more ill-health and suffering than any condition.

PEDIATRICS

ORIGINAL ARTICLES

PNEUMOCOCCAL PERITONITIS IN CHILDREN*

BY

SEYMOUR BARLING, M.S., F.R.S.C.

Assistant Surgeon, General Hospital, Birmingham; Surgeon to Out-Patients, Birmingham and Midland Free Hospital for Sick Children.

Introductory.

The susceptibility of the body to invasion by the pneumococcus in early life is undoubtedly greater than in later years. The organism can be demonstrated in the mouth, naso-pharynx, and alimentary canal in numbers of healthy individuals at all ages, yet pathological conditions induced by it otherwise than in the lungs or pleura are rare in adults; in children, however, in addition to the frequency with which the lungs and pleura are attacked, it not infrequently gives rise to lesions of the joints, epiphyses, meninges, peritoneum, pericardium, middle ear or subcutaneous tissues. These conditions are sometimes multiple and often fatal, and indicate a pneumococcal septicæmia. Such a general infection is rare in adults, their greater resistance enabling them to localize the invasion of the organism to the primary site of infection, usually the lungs.

Incidence.

Pneumococcal peritonitis occurs with sufficient frequency to make it a factor of real importance in the differential diagnosis of the acute abdomen in the child, and inasmuch as the onset may anticipate or be independent of any pulmonary lesion the problem of diagnosis is still further complicated.

In series of 27 laparotomies for acute abdomenal inflammatory conditions in children under the age of twelve, I have met with three cases of pneumococcal peritonitis. The 28 cases on which this paper is founded have occurred at the General

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*_London Practitioner_, Vol. lxxxviii No. 4.

Hospital, Birmingham, and the Birmingham and Midland Children's Hospital, in the last four years and I am indebted to the various members of the staffs of these hospitals for permission to utilize their notes in the preparation of this paper. The incidence of pneumococcal peritonitis is greater in female than in male children, though perhaps the difference is not so great as was at one time supposed. Including the series given in this paper, I have collected 234 cases, as tabulated below. These cases are distributed as follows:—Males, 62, or 27 per cent; females, 172, or 73 per cent.

Sex Incidence of Pneumococcal Peritonitis in Children.

	Cases.	Male.	Female.
Bowen	– 91	25	66
Reschbieth	– 57	25	32
Jensen	– 58	7	51
Barling	– 28	5	23

It is difficult to account for this difference of the two sexes unless we assume a lower resistance to the pneumococcus in the female than in the male child, and when we recognize the great selective power this organism has for certain tissues and the varying resistance of the body at different ages, such a difference in the resistance of the two sexes might well exist.

Mode of Infection.

There are several possible routes by means of which the organism may reach the peritoneal cavity. Through the vagina and fallopian tubes in the female, from the intestine itself, from the vascular system as a general septicæmia, or finally, seeing the large number of cases associated with pulmonary lesions and empyema, by direct transmission through the lymphatics of the diaphragm.

The predominance in female children and the not infrequent association in these cases of purulent vaginal discharge, led earlier writers on the subject to regard the fallopian tubes as the probable route of infection. This however fails altogether to account for cases in male children, and though in some cases a vaginal discharge is present, yet it rarely contains the specific organism. Vaginal discharge too is apt to occur in epidemics amongst children in institutions without any corresponding increase in occurrence of cases of peritonitis. The tubes it is true show marked inflammation, but this is not greater than that of the other pelvic contents; an infection conveyed in such a manner would tend, at first at any rate, to be more or less localized to the pelvis, yet the striking fact in these cases is the simultaneous infection of the whole peritoneal cavity in a short time.

The theory that infection comes from the gastro-intestinal tract has received much support, and Bowen and Annand consider that this is the route infection takes in the cases in which the peritoneum only is affected, but it does not satisfactorily explain many of the cases, nor are many of the observed facts in keeping with this theory. It is true that pneumococci may be found in healthy bowel and occasionally give rise to a pneumococcal enteritis or colitis; also injury or necrosis of the mucous membrane may allow the organisms to pass through the wall and thus infect the peritoneal surface. It is however quite exceptional to find any constant macroscopic lesion of the mucous membrane of the stomach or intestine—thus Jensen, in a summary of 106 cases in adults and children collected from Continental literature, found lesions in the mucous membrane of the stomach or intestine in only 20 cases; these lesions included perforated gastric ulcer (four cases), chronic gastric ulcer (four cases), carcinoma of the stomach (two cases), catarrhal colitis, membranous enteritis, and tuberculous ulceration of the lower lieum, and were so diverse as to suggest that they were concomitant rather than causative; they mostly occurred moreover in the adult cases. Jensen, it is true by feeding rabbits and mice on virulent cultures of pneumococci succeeded in one case at any rate in producing a fibrino-purulent peritonitis in a rabbit, preceded by diarrhea and wasting. Death ensued in two days, and at the post-mortem a general septicæmia existed which was considered to be of more recent origin than the peritonitis. Peyer's patches were found to be necrosed. The mucous membrane of stomach and intestine in children in these cases is usually quite intact, though areas of slight congestion may be found and some swelling of Peyer's patches be noticed.

In my own 28 cases, post-mortem examinations were performed in 18 cases, and in only one was any macroscopic lesion found in the intestine. In this case two small tuberculous ulcers were present in the lower part of the ileum. In two other cases marked swelling of Peyer's patches and the solitary follicles was present. It is not infrequent, however, to get such swelling in broncho-pneumonia unattended by any peritonitic symptoms, and presumably it is brought about by the general toxmæia or by the local action of the bacteria on the capillaries of the part.

Any local invasion of the bowel wall by the organism would be expected to cause enlargement of the neighboring mesenteric lymph glands; this is rarely found in pneumococcal peritonitis; the bronchial glands are, however, always found inflamed in this condition, and experiment with regard to pneumococcal infection in lower animals shows that the glands draining the focus of inoculation are always infected. Local invasion of the bowel by the organism should manifest itself, at first at any rate, as a localized peritoneal inflammation; this, however, is not the case—the condition is from the first widespread and diffuse. All these facts seem to suggest that the organism selects some other route for its attack on the peritoneal cavity, and the only theory that will explain the many features of the disease and account for the widespread and diverse lesions that are associated with it is to regard the infection as a septicæmic manifestation.

Experimental medicine teaches us that in cases of pneumonia the organism can be cultivated from the blood, and in a large number of cases of pneumococcal peritonitis lesions of other parts of the body are present and produced by the same organism that are only to be explained by a general blood infection. Thus out of 28 cases one or both lungs were affected in 19 cases, one or both pleural cavities also in 19 cases, in three cases the pleural cavities were infected, not the lungs, and in three cases the lungs were affected but not the pleuræ. The pericaridum was effected in six cases, and in these cases there was a widespread infection involving the lungs, one or both pleural cavities, the pericardium, and the peritoneal cavities. All were fatal. Such widespread infection can only be satisfactorily accounted for by regarding the condition as a septicæmia.

In many, but by no means all cases, the lungs are first attacked, and this would seem to be the focus from which the septicæmia and peritoneal invasion results, but other pneumococcic foci may, from time to time, light up a peritonitis independently of lung invasion; thus in one case in which pneumonia had been followed by right-sided empyema this had been drained and was healing satisfactorily till at the end of nine weeks after the onset of pneumonia only a slight sinus remained. At the bottom of this a little pus pocketed, and from this focus the patient developed a widespread pneumococcic peritonitis which rapidly proved fatal in spite of drainage of the pocket and of the abdomen within 36 hours of the first rise of temperature. There was no fresh involvement of the pleura or lungs. Bowen and Annand, out of 30 cases in which the infection was secondary to some pneumococcic lesion, found the primary source in the lungs in 22, the other eight cases were accounted for as follows: Otitis media three, umbilical abscess one, intramuscular abscess two, sore throat two. In four of these latter cases the infection involved other serous cavities besides the peritoneum, and was probably therefore septicæmic.

In experimental inoculation of animals with the pneumococcus the lesion produced depends on the natural resistance of the animal. The more immune species develop acute local reaction at the site of inoculation, the more highly susceptible a general septicæmia. It would seem that the child comes into the latter category; hence the frequency with which multiple lesions are found and their heavy mortality. The adult however, with the greater resistance, is able in the majority of cases, to localize the main attack of the disease to the lungs, and though diplococci are generally to be isolated from the blood no infection takes place elswhere.

In a certain proportion of cases the peritoneum only is attacked, and no lesion is present in the lungs or elsewhere. The organism in these cases would appear to have entered the circulation direct from some of those sites where it is normally found, a temporary increase of virulence or of lowered resistance on the part of the patient having permitted this invasion to take place even without any macroscopic lesion being present. The early occurrence of diarrhea in these cases has been thought to point to a primary pneumococcal enteritis with a secondary infection of the peritoneum, but a close examination of these cases will show that pain is usually the first symptom complained of. This indicates an inflammation of the peritoneal surface of the bowel; the diarrhea comes on a few hours later as all the coats become involved in the inflammatory process, and so would appear to be a result of the peritoneal infection rather than a causative factor.

Pathological Anatomy.

The appearance presented by the peritoneal cavity after infection with the pneumococcus is very characteristic. The bowel is inflamed and distended, and the coils are lightly glued together by the roughening of the peritoneal surfaces, and by the fibrinous exudate lying on them. The infection is widespread, and there is a general diffusion throughout the whole peritoneal cavity of the characteristic exudate consisting of a serous fluid portion, with large fibrinous or fibrino-purulent greenish-yellow flakes floating or lying in it. In one case in which I operated within 24 hours of the onset of the abdominal symptoms none of the characteristic flakes of lymph were present; the bowel wall was injected and sticky, and the effusion was thin and serous, and it would seem that the thicker portion of the exudate is a later product. The exudate is quite odorless as a rule, but may be secondarily infected by the bacillus coli in long-standing cases. In the more chronic cases too the fluid part of the exudate may disappear, leaving firm fibrinous adhesions between neighboring coils. Though general at first, in subacute cases the inflammation may localize itself usually in the loin or pelvis. Such collections tend, if not evacuated, to open either at the umbilicus or into the alimentary canal or even the vagina. The other organs within the abdomen show very little characteristic change other than inflammation of the peritoneal coverings. The liver sometimes shows fatty changes, or cloudy swelling, the spleen may be more diffluent than ordinarily, or be enlarged, congested, or even hemorrhagic in severe cases. Such cases too may show congestion or cloudy swelling of the kidney. The hollow viscera show no constant change with the exception of their peritoneal coat, which is inflamed, swollen, and sticky, and has lost its characteristic gloss; the mucous membrane of the alimentary canal, with the exception of occasional swelling of Peyer's patches of or the solitary follicles, shows no change.

Clinical Features.

In the onset of a pneumococcal peritonitis three different clinical types may be recognised. In the first place are the very acute cases, presenting marked abdominal features from the first but with no other pneumococcal lesion in the lungs or elsewhere in the body. The following is an example of such a case:—

A female patient aged seven, was admitted to the Children's Hospital with a history that seven days before admission she had been seized with diarrhea, vomiting, and severe abdominal pain. The diarrhea lasted three days and the vomiting five days. On admission the child complained of pain in the lower abdomen, looked sunken and ill, and had herpes on the lips. The abdomen was rigid, very tender, and somewhat distended. No abnormal physical signs present in the lungs. Operation revealed diffuse pneumococcal peritonitis, and the patient died a few hours later. Post-mortem examination showed no sign of disease except in the peritoneal cavity.

Seven cases out of 28 belonged to this class; of these, four patients recovered and three died.

In the next class may be placed cases which simultaneously, or almost so, with the onset of the peritonitis develop a pneumonia. Such cases on admission present well-marked abdominal signs and a pneumonia of one or both lungs. The following is an example of such a case:—

The patient, a female, two and one half, years old, was admitted to the Children's Hospital with the following history. The child was seized with vomiting and diarrhea, and difficult breathing was noticed from the commencement. The vomiting was present on the day of onset only. The patient looked very ill; the alæ nasi were working; respiration, 60; pulse, 150; the abdomen was distended, rigid, and tender. The left lung in its lower two-thirds, and the whole of the right lung were affected with diffuse broncho-pneumonia. The child died the day after admission. Post-mortem examination revealed a double broncho pneumonia, commencing double empyema, and diffuse peritonitis.

Fourteen out of 28 cases belonged to this type, and of these only one recovered, and possibly this case should have been placed in the first category, as the lung signs were very indefinite though the respirations were 40 per minute.

In the third category may be placed those cases in which the septicæmia is of a more chronic type. Often pneumonia has been present some weeks previously; following this the patient has gone downhill, and collections of pneumococcic pus have appeared in one or other pleural cavity or peritoneum.

Such cases may in turn develop an infection of both pleural sacs' and following this a peritonitis. The infection has lost much of its virulence, but the patient is weakened by the long illness and often succumbs eventually to the peritoneal infection. These cases are most suitable for vaccine treatment to shorten the duration of the disease and prevent the occurrence of such residual infections. The following cases is an example of this type of infection:—

The patient, a female, aged ten, had had "bronchitis and influenza" two months before admission to the Children's Hospital. She had never been well since and had wasted and suffered from cough and pain in the left side. On admission she had a left-sided empyema, which was drained. The following day she had much abdominal pain and the abdomen became rigid, immobile and tender in the lower half. Operation showed a general injection of the bowel with free serous fluid in the abdomen; this was drained. The patient recovered after a tedious illness.

Of the seven cases belonging to this class the above was the only one that recovered.

Usually the first symptom to draw attention to the abdomen is pain. This is severe and general all over the abdomen; it may persist in its severity for several days, occasionally becoming localized to the umbilicus or right iliac fossa, and thus closely simulating appendicitis. The pain is soon followed by vomiting and diarrhea. Both may persist for some days; not infrequently the initial diarrhea, after lasting for one or two days, ceases and is followed by constipation. These three symptoms—pain, vomiting, and diarrhea—are very constant in their occurrence. With the onset of the pain the abdomen rapidly becomes generally tender, immobile, and rigid; later on these signs tend to become most marked in the lower part of the abdomen, and often the right iliac fossa is especially affected. A large quantity of fluid is poured out from the inflamed peritoneal surfaces and areas of dullness may be present, especially in the right or left flank, whilst the collection which settles in the pelvis gives a feeling of fullness when a rectal examination is made. The abdomen soon becomes distended, partly owing to the effusion of fluid and partly due to paretic distension of the bowel which succeeds the initial diarrhea. Fever is present from the commencement and the temperature may be as high as 103° or 104° F. When the lungs are also affected rapid respiration, active alæ nasi, and the usual local signs of a bronchopneumonia or a true lobar pneumonia become manifest. After a few days wasting is rapid, and sunken eyes and pinched face indicate the gravity of the condition. Leucocytosis is generally absent on the first day or two; in the most acute cases no increase in leucocytes occurs throughout the illness, all resistance seems paralyzed, and the patient dies without reacting in this manner. If the infection, however, is not overwhelming, a rise in the leucocytes begins on or about the third day, and may continue until a very high leucocytosis of 30,000 or 40,000 is reached. Thus in one subacute case in which a local abscess formed and pointed at the umbilicus, a leucocytosis of 45,000 occurred on one occasion.

Herpes on the lips occurs in a few cases, and suggests a close examination of the chest when present with an acute abdomen. It was noted in three cases of this series, and one case had as well an acute spreading dermatitis on the chin and neck. A petechial rash may appear on the body or limbs in the late stages of the severest type of case.

In the cases that pass on to the subacute stage the effusion localizes itself to one part of the abdomen which remains tender and resistant, the patient wastes rapidly, diarrhea persists with occasional vomiting, and a high leucocytosis is present. If such a case points at the umbilicus this usually becomes prominent, red, and tender, and eventually the skin gives way over it, with discharge of the contents of the abscess cavity.

Diagnosis.

Diagnosis is readily made in those cases which present the typical abdominal symptoms when a pneumococcal lesion is found to exit elsewhere in the body. In a number of cases however, the first, and sometimes the only symptoms, are abdominal. Here the onset is most likely to be confused with an acute appendicitis. This is especially the case when the maximum tenderness, rigidity, and dullness become localized in the right iliac fossa. In not a few cases differential diagnosis from appendicitis is imposible; but the early and diffuse ridigity and tenderness are suspicious signs, and if these are accompanied by initial diarrhea there is a strong suspicion that the case is one of pneumococcal peritonitis. Pain is early and diffuse in both conditions, but tends usually in appendicitis to become localized around the appendix. In a large number of cases the lungs are involved from the beginning of the illness, and rapid respiration, accompanied by local signs in the chest, give the key to the abdominal condition. It is well known that many cases of pneumonia in children may present abdominal symptoms without any involvement of the peritoneum. In such cases, rigidity, tenderness, and pain are present, but chiefly in the *upper* abdomen. These symptoms are usually of short duration only; vomiting, though it may have occurred at the onset, does not persist, and diarrhea is absent. The subacute cases that go on to abscess formation may be mistaken for typhoid fever or tubercular peritonitis. One case at the time of admission presented symptoms very suggestive of typhoid fever. The patient had been ill for a fortnight, and on admission was lethargic and drowsy. The abdomen was doughy and painless, the tongue furred, the temperature 102° F., the pulse 140, and the lungs normal. Diarrhea was present; leucocytes 8,200. Widal reaction was, however, negative, and at the end of four days the umbilicus became red and tender and pain was present and a localized swelling appeared in the right upper abdomen. Leucocytosis by this time was 13,000 and later rose to 45,000. Incision at the umbilicus let out several ounces of typical pneumococcic pus.

The onset of a tuberculous peritonitis in about one-third of the cases is sufficiently acute to closely resemble pneumococcic peritonitis; the constitutional symptoms are, however, usually less severe, and high fever at first would suggest a pneumococcic condition. Speaking of the differential diagnosis of the two conditions, Wright states in one case of pneumococcal peritonitis that he saw the tension of the fluid in the peritoneal cavity was far higher than he had ever seen in any tuberculous case. When the acute stage has passed off the localized collection of fluid tending to point at the umbilicus, as well as persistent diarrhea, are common to both. A leucocyte count may help to differentiate the two conditions, as this is usually raised in such cases of pneumococcal peritonitis and absent in the tuberculous cases. Wasting is usually more rapid in the pneumococcal cases.

Prognosis.

Looking to the septicæmic nature of the infection, the mortality will always necessarily be a high one; in the series of 28 cases under review six recovered and 22 died, a mortality of 79 per cent. The type of case in which the best prognosis can be given is that in which the peritoneum only is attacked and there is no sign of involvement of lung or pleura; four out of seven of such cases recovered. All the cases that recovered had been operated on and none recovered that had not been so treated. These latter, however, include all the worst cases in which the peritonitic symptoms were overshadowed by the general septicæmia. Very few of the cases were operated on as early as they should have been, and earlier operation will undoubtedly save a few more cases, for notwithstanding the general septicæmia, the power of resistance of the body will be aided by early evacuation of any of the local collections of pus, whether in the plerua or the peritoneum. In one case which recovered both the left pleura and the peritoneum were infected, but inasmuch as the patient was under treatment for the empyema at the time of onset of the peritoneal infection, the abdomen was opened earlier than in any other case in this series, and the patient recovered after a long illness. All cases in which the pericardium was infected proved fatal.

Treatment.

Success in the surgical treatment of the various forms of septic peritonitis depends on our ability to remove and drain the local lesion which has started the condition. The infection is first local and then generalizes throughout the peritoneal cavity, and later occasionally becomes septicæmic. In pneumococcal peritonitis the condition is septicæmic from the first. Incision and drainage, however early performed, will fail to relieve in many cases, and the mortality will always be high. Nevertheless, free drainage of all collections of pus, whether in the pleural sacs or in the peritoneum, will aid the defensive powers of the body against the infection. The earlier this is done after the first manifestation of symptoms the better. In the eighteen cases operated on in this series of cases all but two had had marked abdominal symptoms for more than 48 hours and three over a week before operation. The two early cases both arose in hospital; one of these recovered, in spite of having a right-sided pneumonia and empyema as well as the peritonitis.

The imposibility of distinguishing some of the cases from an acute appendicitis increases, if possible, the necessity for early incision; a large proportion of the cases operated on are opened in the first place in the right iliac fossa, in the expectation of finding the appendix as the cause of the symptoms. The characteristic greenish-yellow, odorless pus is quite distinctive however, and the appendix is free from any lesion except that it participates in the inflammation of all the serous surfaces. Acting on the general lines that have been so successful in lowering the mortality of septic peritonitis, incisions should be made in both flanks and in the middle line above the pubes, tubes being placed in the pelvis and loins. No wiping or irrigation is done; such procedures remove not only the infecting organisms but sweep away all the defensive powers of the peritoneum, increase absorption, and prolong the operation unecessarily. The operation should be done as speedily as possible and the patient put back to bed in the Fowler position. Saline solution should be given freely, by the rectum by continuous proctocysis if possible, or failing this, by enemata, or by the intravenous method. Nothing should be given by the mouth except a little water, and all aperients should be withheld till some days after operation.

The treatment of pneumococcic infections by vaccines has not met with the success which at first sight might be expected from such methods. The reasons for failure are twofold. In the first place, the infection is sometimes so overwhelming that all resistance of the patient is paralyzed. In such cases the leucocytosis and opsonic index are low and both progressively fail, and the patient succumbs to a profound septicæmia; the tissues seem incapable of producing anti-bacterial substances either naturally or with the added stimulus of vaccine therapy. In the second place, there are many strains of pneumococcus, and immunizing against one of these may not protect against others, so that the use of "stock" vaccines is most unsatisfactory, whilst the production of an autogenous vaccine takes up much valuable time which can ill afford to be lost in treating conditions so acute as these usually are.

In the very chronic cases with residual abscesses in the pleura, peritoneum, or elsewhere in the body, the use of autogenous vaccines has been attended with considerable success, and should be used as a routine measure in such cases. In several of the cases in this series the infection of the peritoneal cavity was very late; the pneumonia had occurred some weeks previous and had led to an empyema which did not progress satisfactorily with simple drainage, and after dragging on for some time the patients eventually succumbed to a pneumococcal septicæmia and peritonitis. This liability of chronic empymata to end thus should be recognized, and the prompt administration of an autogenous vaccine would probably save many such cases.

None of this series of cases was treated by vaccines, and I can find no record of any cases of pneumococcal peritonitis so treated. In pneumonia they are being extensively tried with some success; the question is however, still sub judice. It is reasonable to hope that in the future some at any rate of the less severe cases of pneumococcal peritonitis, that we are unable at present to save by surgery, will be helped by vaccine therapy.

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OUR PRESENT KNOWLEDGE OF THE PHYSIOLOGY AND CHEMISTRY OF GASTRIC DIGESTION AS APPLIED TO VOMITING IN INFANCY.*

BY

ALEXANDER C. EASTMAN, M.D.

Springfield, Mass.

The progress made during the last few years in connection with the physiology and chemestry of gastric digestion in infants has changed our point of view when dealing with difficult feeding cases, and especially cases of persistent vomiting. It has been the custom in the past to treat such cases empirically, increasing and diminishing percentages according to daily changes in symptoms and using lime water in various proportions according to the apparent requirements of the

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infant's stomach. The use of peptonizing powders has been a common practice of the medical profession for a great many years, and more recently sodium citrate has had its strong advocates for the treatment of vomiting. It is a relief therefore to feel that we are approaching a scientific method of dealing with these cases and that by starting with the stomach and a knowledge of its physiology and chemistry we can best learn what its needs may be in an individual case.

In a review of the literature on "Gastric Digestion in Infants" by Clark in 1909, he gives the credit of the first systematic chemical investigation of an infant's stomach to Leo in 1888. Clark considers the subject under four headings: motility, acidity, pepsin-digestion, and rennin coagulation. His conclusions are briefly as follows: "All the factors present in the adult are found in a weaker form in the young infant. In the newborn child on breast-milk the stomach usually empties itself in from an hour to an hour and a half; as the child grows older this time becomes longer. The motility is more rapid in breast-fed children than in those on cow's milk or artificial food, and more rapid in the healthy than in the ill child. The acidity immediately after a meal is nil, but steadily increases during digestion, and is less in the very young than in the older. On a barley water diet free hydrochloric acid appears in the stomach in a few minutes, but on a milk diet it does not show itself for an hour or more, due to the fact that the casein absorbs it or combines with it in some way, and the free acid does not appear until the casein has taken up all required for its complete digestion. The free acid appears later in disease than in health, due to the increased amount of food in the stomach and to the slower secretion of the acid; in cases of pylorospasm the acidity is increased. Lactic and volatile fatty acids probably do not occur in healthy breast-fed infants, while in those ill or on cow's milk they are fairly common. Part of the acidity is probably due to a fat-splitting enzyme in the infant's stomach. Pepsin is present at all ages and in all kinds of health, and acts in the infant stomach though to a less degree than in the adult. The peptic digestion goes on to the stage of peptones, but not beyond that. Rennin occurs in the stomach after the first few weeks of life."

To take up these four headings in more detail and under the light of still more recent investigations I shall first consider motility. The work of Cannon on the physiology of the stomach has become a classic and gives us a basis for our present knowledge and future study of gastric digestion. He has demonstrated that a certain normal tonus of the muscles of the alimentary tract is necessary for the normal peristaltic action. This tonus is stimulated by a vagus reflex due to mastication and sense of taste and when once stimulated is continued by the rythmical peristaltic action due to the pressure of food. The stomach during digestion is conical in shape and because of the comparatively too little stimulation of muscle contraction at the large cardiac end and too great stimulation at the pyloric end, a section between where stimulation and tonic contraction are better suited to each other, becomes the seat of beginning persistaltic waves which pass toward the pylorus. This causes a churning of the food at the pylorus and by added pressure at the cardiac end, due to increased bulk of food resulting from contraction of the antrum, peristaltic contraction of the cardia is started pushing the food from that region toward the antrum for further churning.

Thus any diminution of muscle tonus will delay peristaltic action in the stomach and tend toward lessened motility. This is in accord with experiments by Chapin who studied a series of atrophic infants and demonstrated that only a small proportion of them had empty stomachs at the end of three hours and most of these were more than holding their own. The point was made that such children as a rule are fed too often and as a result fermenting food is left in the stomach to contaminate succeeding feedings, and gradually a dilated stomach results with further loss of muscle tone.

Clark has demonstrated that the motility of the stomach varies inversely to the concentration of the food—the more dilute the food the quicker the stomach empties itself. Cannon has also proved that water and egg albumin in liquid form, by not stimulating tonus of the gastric wall or pylorus, pass rapidly out of the stomach.

Cannon has further shown that peristaltic action of the stomach is not in itself responsible for the emptying of the organ; that the character of the food causes different degrees of rapidity in gastric action, depending upon the acidity of the stomach. He has shown that the rapidity with which the stomach empties itself depends on the acid control of the pylorus. In brief the alkaline food entering the stomach from the œsophagus after reaching a certain degree of pressure sufficient to start gastric peristalsis tends to regurgitate back and forth into the œsophagus until sufficient acid has been secreted to close the cardiac orifice. This food then remains in the stomach until sufficiently mixed with acid, and then by peristalsis some of the acid food reaches the pylorus which then opens allowing it to escape into the duodenum. Here its acid reaction tends to close the pylorus and at the same time stimulate the alkaline secretions of bile and pancreatic juices, which by neutralizing the acid in the further process of digestion allow the pylorus to again open and thus more food to pass out of the stomach. This process continues as long as there is food in the stomach.

The effect of different kinds of food, therefore, depends upon their action in stimulating and uniting with the hydrochloric acid secretions. Thus carbohydrates stimulate but do not unite with the acid and hence pass quickly out of the stomach. Proteids stimulate and also unite with the acid so that they pass out more slowly, depending on the extra time needed for an excess of acid to be produced, whereas, fats delay the secretion of acid and hence pass out still more slowly.

Furthermore, it has been proved that a fat-splitting enzyme is present in the infant's stomach which, although it assists in opening the pylorus by the formation of fatty acids, at the same time after a certain amount has passed into the duodenum tends to keep the pylorus closed by the continued action of the pancreatic fat-splitting enzyme,—this fat chyme remaining acid in spite of the action of intestinal alkalies until it has been entirely absorbed or passes along into the lower bowel. Thus the gastric digestion of fat remaining in the stomach is still further delayed. Sedgewick has further demonstrated that the gastric lipase continues to act even after being mixed with the pancreatic enzyme.

The action of acid in the stomach brings up the question of the action of alkalies and antacids upon gastric digestion. The antacids naturally delay the action of the hydrochloric acid and as will be shown later the action of rennin and pepsin. On the other hand Clarke has shown that lime water, while rendering the food alkaline, tends to stimulate the secretion of hydrochloric acid so that as digestion progresses the flow of hydrochloric acid increasing above the normal. In other words the action of the acid is delayed, but as digestion progresses the available acid may be increased above the normal. Cowie and Lyon in some more recent experiments could not find that there was any increase in acid secretion through the action of lime water. They have concluded that the infant's stomach secretes all the digestive juices from the first day of life; that the evacuation of the infant's stomach depends upon the degree of acidity, excessive acidity delaying evacuation, a total acidity varying from eight (8) to thirty (30) offers the normal stimulus for pyloric relaxation. That lime water does not inhibit but does delay the formation of rennin curds, and that sodium citrate inhibits the action of rennin, the curd in this case being the casein hydrochlorid curd instead of the paracasein hydrochlorid curd. This action of sodium citrate is in accord with Southworth's statement emphasizing its decalcifying action, thus rendering the casein inert to the action of rennin, but allowing the formation of the softer casein hydrochlorid curd. He also emphasized the folly of using lime water at the same time that sodium citrate is used, thus giving more calcium to be acted upon by the sodium citrate.

In general it may be said that lime water delays the action of the acid but may later, by stimulating an increased secretion give an abundance of the acid. Sodium bicarbonate by neutralizing the acid delays all curdling of milk for a much longer period, until in fact the excess of antacid has been completely neutralized. Sodium citrate delays the action of hydrochloric acid, but its chief function is in preventing the action of rennin, allowing only for the acid formation of the casein hydrochlorid curd.

As to the chemistry of pepsin and rennin, it has been proved that they are both always present in the infant's stomach and in order to act must have an acid medium. The rennin forms the paracasein curd which is then acted upon by the acid and changed to a free casein curd and by further action of acid to the casein hydrochlorid curd. The pepsin then acts upon this curd changing the proteid as far as peptones but no farther.

The relationship of gastric digestion to the vomiting of infants becomes, therefore, of vital interest. The causes of vomiting in breast-fed infants is probably due almost always to a high fat percentage usually caused by a lack of exercise plus over feeding on the part of the mother. The remedy naturally lies in regulating the mother's daily life and if necessary diluting the milk. I shall not consider the subject of pylorospasm.

In bottle-fed babies the causes are more numerous. In the first place a large number of persistent vomiting cases are the results of too strong a formula at the time of weaning. A baby is often weaned from the breast because of failure to gain on the mother's milk and then put on a stock formula according to the age regardless of the previous experience with mother's milk. The baby begins to vomit but that is explained simply because cow's milk has been started. No reduction in formula is made and the vomiting continues until the baby gradually approaches the atrophic state. Too much emphasis cannot be laid upon the importance of beginning with a very weak formula when first putting a baby on cow's milk. The stomach has to have time to regulate itself to the extra work required in digesting the harder curd formed from this milk. Many of these vomiting cases can be relieved by reducing the fat at the outset and then with a suitable alkali or antacid, according to the natural acidity of the individual stomach, gastric digestion is allowed to progress with normal activity. It is fundamentally necessary in such cases to examine the gastric contents for acidity and almost always the litmus test is sufficient to give us a working basis. If vomiting continues, further examination of the gastric contents as to motility is necessary, so that proper regulations of the intervals of feeding may be made.

There are certain cases of marasmus and atrophy where the lack of muscle tonus is the prime difficulty and this condition is often fostered by the continued use of too dilute a formula. A dilute formula is necessary at first; but after a certain time it can be seen that, in order for the stomach to regain its tonus, it must have a sufficient bulk of food to stimulate peristalsis. This bulk can be increased by raising the per cent of proteid in the formula. The proper time to make this increase is often a difficult problem to solve and necessitates moreover longer intervals of feeding.

It is now definitely conceded that too high a percentage of fat may be a definite cause of persistent vomiting. Not only in the cases mentioned, at time of weaning, but in many cases successfully weaned on to cow's milk which, because of slow gain in weight, have had the fat pushed to a high percentage. Talbot has shown by his work on the stools of infants the ease with which excess of fat can be detected. He has demonstrated that the greater part of the fecal fat comes from the food; that in the early weeks of life there is normally a fairly large amount of fat in the stools but later on a much larger amount of fat is absorbed so that examination of the stools becomes of much greater value. A large amount of fat soaps in the stools signifies a putrefactive process in the alimentary tract and such cases show a decided lack of absorption. By adding carbohydrates in excess Kendall has shown that these soaps tools can be changed to fatty acid stools and the fermentative bacteria be produced in the intestine. If a diarrhea follows this change a still greater loss of weight follows. Hence, it is seen that apart from the tendency to vomit, excessive fat causes a chain of symptoms which end in severe cases of atrophy. The vomiting in these cases should be taken as a serious danger signal. I find that rarely does a healthy baby require more than three and a half per cent of fat and chronic vomiting babies must be kept on a very low per cent. By keeping the fat lower in quantity, it is possible to increase successfully and much earlier than formerly supposed the per cent of proteid, and as the infant grows older this increase in proteid is a necessary factor in normal growth.

We must further bear in mind the established fact that cow's milk remains in the stomach longer than mother's milk, hence, the intervals of feeding must be longer in bottle-fed than in breast-fed babies. The general average may be taken as one-half hour longer intervals in bottle-fed babies, and this interval must be further increased in babies that are ill or because of marasmus or atrophy have a diminished muscle tonus. Vomiting due to hyperacidity or hypoacidity can be easily recognized and, according to Clarke's suggestion, the treatment is likewise simple; namely, the use of lime water or dilute acid in hypoacidity and the use of antacids in hyperacidity. I can give no definite experience with the use of lime water in hypoacidity, but I have frequently found that vomiting in cases of hyperacidity was not stopped but in several cases increased by the use of lime water, whereas it was readily stopped by the use of sodium citrate or sodium bicarbonate.

In conclusion I wish to emphasize the necessity for considering these cases of persistent vomiting, and in fact all cases of difficult digestion, from the point of view of the stomach and the knowledge gained by a study of gastric physiology and chemistry. Only in this way can we hope to treat them intelligently and scientifically.

6 Chestnut Street.

ARTHRITIS DEFORMANS IN CHILDREN

BY

JAMES K. YOUNG, M.D.

Associate Professor of Orthopedic Surgery, University of Pennsylvania; Professor of Orthopedic Surgery, Philadelphia Polyclinic; Clinical Professor of Orthopedic Surgery, Woman's Medical College.

Philadelphia, Pa.

My object in presenting the following pages relative to arthritis deformans in children is to emphasize certain salient features bearing on the affection itself, rather than to elaborate in detail the many characteristics that make it strictly most interesting and important to the orthopedic surgeon as well as to the pediatrist.

In making the title of this brief article, I employ the term "arthritis deformans" as first suggested by Virchow and avoiding altogether the rather dubious, confusing and misleading appellations, "rheumatoid arthritis" and "rheumatic gout," to designate the peculiar progressive inflammation of joints characterized by alterations of the capsule, cartilage and bone.

More than half a century ago Dr. A. E. Garrod applied the term "rheumatoid arthritis" to the affection, believing that the external conditions resembled those characteristic of rheumatism of a subacute type, whilst some of the older clinicians designated it, "chronic gout" or "rheumatic gout." But as the study of pathology progressed, a truer insight and the nature of the malady became evident, and later Haygarth described arthritis deformans as an independent disease. In 1899 Dr. G. F. Still announced the study of a peculiar form of arthritis occurring in infants and young children, not identical with arthritis deformans, but bearing a striking resemblance to it, in some of its salient characteristics.

The etiological factors concerned in the production of the disease are many, but poor hygienic surroundings, exposure to wet and cold, and insufficient diet, no doubt largely contribute to the invasion of the disease. Traumatism not infrequently accounts for the development of arthritis deformans, and lastly its occurrence most commonly in the female sex is peculiar. From fifty to eighty per cent. of the cases occur in women while statistics show that girls beyond the age of twelve are by no means exempt from it, its presence in boys being of much rarer occurrence.

In the vast majority of cases arthritis deformans is reactive or secondary and I group the exciting causes as, traumatic, pathological, pathogenic, metabolic or toxic.* There is an idiopathic or apparently primary form, which is rare.†

Traumatism as an exciting cause has been noted since the time of Haygarth. Medical literature abounds with innumerable instances of arthritis deformans, the result of skeletal injuries, especially where the initial signs and symptoms of the disease become manifest, the sequence to fractures and dislocations. Repeated injuries to the joints strongly predispose to the development of the affection.

Some of the pathological conditions of the internal organs are exciting causes of arthritis deformans. This may be illustrated in the deficient nutrition of heart and kidney disease, in neuropathic and neurotic conditions, etc.

The pathogenic causes are ascribed to the presence of pathogenic organisms, non-pyogenic in nature, and some of which are not due to the organisms, but to their elaborations in the form of bacterins, toxins or endotoxins. Bannatyne and Wohlman, Schuller and others have endeavored to isolate the specific micro-organisms causing the chronic joint affections, but their findings have not been generally accepted. Nevertheless the theory that microbic infection is responsible for the invasion of the affection, finds support in the not infrequent occurrence of arthritis deformans following in the wake of some of the acute infectious diseases, such as scarlet fever, measles, typhoid fever and pneumonia; and its association with pseudodiphtheria, pyorrhea alveolaries (Rigg's Disease), psoriasis, furunculosis, etc.

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*The peculiar characteristic prodromal symptoms pointed out by Spender and so graphieally described allitterately as pulse, pigmentation, perspiration and pain, should always enable the practitioner to recognize the possible oncoming of the disease.

†International Clinics, Vol. III, 20th Series.

The metabolic or toxic class of cases are neither pathological nor microbic in nature, but secondary to some anomalies in normal metabolism, as illustrated in auto-intoxications of intestinal origin, or from toxæmias resulting from chronic pulmonary affections.

Any of these causes may be responsible for the occurrence of the affection in childhood, when it is characterized by marked inflammatory changes, beginning in the synovial membrane and soft parts, resulting in hypertrophy of synovial villi and effusion. Cartilaginous erosion without destruction and the absence of hypertrophy of the ends of the bones are characteristic. Later the synovial membrane atrophies, fibrous tissue forms and ankylosis results. In addition to the pericarticular changes and the symptomatology common to the affection, infants and young children may suffer a peculiar arthoitic condition called Still's disease after Dr. G. F. Still (Med. Chur. Trans., 1899), who first described it. The term should be restricted to a class of cases partaking largely of the nature of arthritis deformans with certain special symptoms in association. There is no known etiology. The infective nature of the malady is strongly suggestive by glandular and splenic enlargement. It occurs most often before the second dentition and its onset may be abrupt or gradual. Still emphasizes the absence of bony irregularity and crepitation and later of suppuration and bony ankylosis, but he notes creaking of the tendons in their sheaths and of the joint-cartalage on motion. The disease is polyarticular, and movement is lessened because of the pain produced. In conjunction with the joint-affection, the lymphatic glands, especially those in relation with the affected articulation, are sensitive and may be so swollen as to be visible. At the same time the spleen undergoes an enlargement, which may be so marked as to project an inch or more beyond the ribs. Profuse sweats and a mild fever are accompanying symptoms. Still further contributes to this interesting study, in his assertion that the bodily growth is often delayed or even arrested with the advent of the affection, and he cites the case of a boy of twelve, who suffered for a period of eight years and who appeared to him to be no older than a lad of six. The disease, while not in itself fatal, may leave its victim a hopeless cripple.

In this very brief survey of an all-important subject, I have merely touched in a superficial fashion upon a few thoughts uppermost in my mind, and in the same cursory way I wish to dwell for a few moments on a bare outline relative to treatment.

In the treatment of arthritis deformans, besides the usual routine laid down in text-books, it is essential, whenever possible, to find the exciting cause of the malady and to remove it; and this brings into consideration the existence of pathological conditions of the tonsils and nasal sinuses, the presence of pyorrhea alveolaris (Rigg's Disease), absorption of pus from abscesses in different parts of the body, cases due to bronchorrhea; lesions of the heart, lung, kidney, etc., and the recognition of the metabolic forms engendered by some deviation in normal bodily nutrition.

The treatment of the first-mentioned causes here enumerated namely: diseases of the tonsils, nasal sinuses, etc., should be entrusted to a skilled laryngologist, capable of making or having made a culture of the pus and a preparation of an autogenous vaccine. Again, lesions of the heart and kidney demand the employment of massage and the proper manipulation of the joint by the orthopedic surgeon, besides the treatment enjoined by clinician. Lesions of the nervous system should engage the attention of the neurologist, in combination with the local treatment of the joints by the orthopedic surgeon.

Where the diagnosis of faulty metabolism is found as the exciting factor of arthritis deformans, some of the very best results have been attained by employing the bacillary treatment introduced to general notice by Metchnikoff, resulting in the production of lactic acid in milk by the action of two organisms, sometimes called Bulgarian fermented milk, or by the use of the so-called "Lactic Bacillary Tablets." The special orthopedic methods applicable in these cases, include massage, electricity and hot-air treatment, the use of orthopedic apparatus to relieve the weight from the joints, and bandaging of the part.

In conclusion, it seems worthy of comment that the great confusion heretofore existing in medical literature, relative to many of the elements entering into arthritic conditions, has resolved itself into an orderly arrangement of factors, the result of a more detailed study of the affection; and to-day the whole subject may be classified upon an etiological and rational basis.

CHOLERAIC DIARRHEA (INFANTILE CHOLERA.)

BY

EUSTACE SMITH, M.D.

Fellow of the Royal College of Physicians; Physician to His Majesty the King of the Belgians; Physician to the East London Children's Hospital; Consulting Physician to the Victoria Park Hospital for Diseases of the Chest.

London, Eng.

Choleraic diarrhea is the most dangerous form of intestinal flux to which children are liable. It occurs only during the summer months, runs a very rapid course, induces in a few hours a startling change in the appearance of the patient, and often ends fatally. The affection has derived its name of choleraic diarrhea from its resemblance in many of its symptoms to Asiatic cholera; but it is not, like the latter disease, an epidemic malady, and appears to be essentially distinct in its nature, although in many respects so apparently similar.

Causation.—Choleraic Diarrhea is especially a complaint of hot weather. It is, no doubt, due to the operations of the same microbe to which other varieties of this class of illness owe their origin, but exhibited here in their extremest form. Infantile cholera, as its name implies, is a disease of early childhood, and is more common during the first six months than at a later period of infancy. It is said not often to be met with after the first dentition is completed; but older children are subject, like adults, to attacks of cholerine or summer cholera, which have all the characteristics of choleraic diarrhea in the infant. Boys are said to be more subject to it than girls; and robust children are attacked by the complaint as often as the ailing and feeble.

Symptoms.—The outbreak of the disease may be sudden or gradual. Sometimes it bursts out as a violent attack of vomiting and purging which quickly assumes alarming proportions, and the child speedily passes into a state of collapse. In other cases it begins as an ordinary purging, but after a few days vomiting occurs, and the stools assume the peculiar watery appearance which is so characteristic of this fatal malady.

However it may have begun, the disease when established has very peculiar features. There is obstinate vomiting and very persistent diarrhea. The child first throws up the contents of his stomach, and any fluid or medicine which he is made to swallow. Next, the ejected matters consist of mucus. thin watery fluid tinged yellow, or even pure bile. The stools, which are at first feculent, thin, and offensive, soon lose almost all trace of fecal matter, and consist of a copious flow of serous fluid, which soak into the diaper, and when evaporated, leaves nothing but a faint yellowish stain upon the linen. The quantity of fluid discharged from the bowels is sometimes extraordinary. When thus serous, the stools are not especially offensive; they have not the horribly fetid odor which is noticed in many cases of inflammatory diarrhea—an odor which seems to cling to the diaper, and can be with difficulty washed away. The number of stools varies. Sometimes twelve or fifteen are passed in twenty-four hours. In other cases the bowels act less frequently; but usually, if the stools are separated by a longer interval, a larger quantity is discharged on each occasion, so that the loss of fluid is very much the same.

As a consequence of the profuse drain, both from the stomach and bowels, the patient's body wastes and dwindles with the rapidity which is surprising. After only a few hours the eyes grow hollow and the nose sharp, the cheeks fall in, and all the features look pinched and drawn. If previously well-nourished, the child's flesh loses all elasticity, and feels soft and doughy to the touch. The abdominal parietes are flaccid and sometimes shrunken. The skin is inelastic. Owing to the loss of water, the thirst is extreme. The child, if he can speak, asks constantly for drink. If an infant, he fixes his eyes upon any cup or vessel containing fluid, sucks his lips, and whines in a manner which is sufficiently expressive. In most cases, however, anything which may be swallowed is immediately returned.

The urine is excessively scanty, and if the diarrhea is profuse, may seem to be almost suppressed. The tongue may be clean or covered with a thin fur. Towards the end of the disease it is often dry and brown. The pulse is rapid and very feeble. It often reaches 150, but is regular in rhythm. The temperature is generally high. The heat of the surface may be natural, or even subnormal, and often the extremities feel cold to the hand; but a thermometer placed in the rectum registers a high level, the mercury rising to 104, 105, or even a point still more elevated. The child is excessively restless. As long as he has strength to do so, he moves his arms and legs uneasily, and whimpers or cries feebly. Often he draws up the corners of his mouth as if to cry, but no sound is heard. He sleeps little, but lies in a drowsy state with eyelids only partially closed. The fontanelle is deeply hollowed, and in extreme cases, owing to the shrinking of the brain from abstraction of water, the bones of the skull can be felt to overlap.

In a very short time, unless some amendment occurs, the child passes into a state of collapse. He lies perfectly quiet, as if dozing. His eyes are only half closed; his features are sharp, and his face livid and old-looking. The vomiting usually ceases at this stage, but the diarrhea generally continues, although with diminished violence. The coma becomes more and more complete; the conjunctivæ cease to show any sign of sensitiveness, and the child dies quietly, or in a faint convulsion.

In the comparatively rare cases which terminate favorably, the first sign of improvement usually noticed is a fall in the temperature; the next a cessation of the vomiting, so that fluids can be retained upon the stomach. Then the stools begin to present a better appearance. The serous discharge becomes again tinged with fecal matter, and the craving for drink is less noticeable. The diarrhea may then cease, or thin feculent stools may continue to be passed in small quantity for some days. In other cases, the improvement in the stools is the earliest sign of amendment, and the vomiting continues for a time, even after the purging has ceased.

The duration of the illness is terribly brief. Often it may be measured by hours. Always at the end of the fourth or fifth day, the patient is either dead, or is evidently advancing towards convalescence. Death may take place in five or six hours after the first onset. In other cases the child survives for a longer period. Usually he dies in the course of the third day.

Diagnosis.—There is no difficulty about the detection of the disorder, the uncontrollable vomiting and diarrhea, the intense thirst, the rapid shrinking of the tissues, the copious serous stools, the scanty secretion of urine, the early collapse—all these form a group of symptoms which is very characteristic and, indeed, can hardly be mistaken.

Prognosis.—When the disease is established, the prospect of recovery is faint. Early cessation of the vomiting is a favorable sign, and any return of feculent matter in the stools allows room for hope, however unfavorable the general condition of the child may appear. Also, a fall in the internal temperature, although the symptoms may not have visibly improved, is a sign of amendment which is not to be disregarded. Still, if the inelasticity of the skin persist, it is a sign of the utmost gravity; and should the child sink into a state of collapse, he almost invariably dies. At any rate, I have never known an infant to recover from such a condition. Indeed, in any case, during the first few months of life, the ratio of recoveries is excessively small.

Treatment.—On account of the persistent vomiting, which is one of the marked symptoms of the complaint, attempts to supply nourishment and support the strength of the child against the exhausting and continuous drain from which he is suffering, often meet with little success. Indeed, as long as the vomiting is frequent and distressing, and the purging severe, it is better to abandon all attempts to introduce food into the stomach. We should content ourselves with allowing the child to drink as much hot water as he shows an inclination to swallow; for stinting of liquid in these cases has been shown to be not only cruel, but injudicious. The continued application of a weak mustard poultice (one part to five or six of linseed meal) to the epigastrium usually helps to control the retching; and as soon as any diminution in the vomiting allows us to hope that food may be retained, we may begin by giving a teaspoonful of white-wine whey (iced), and repeating this quantity every twenty minutes or half hour. If this be vomited, a less quantity should be given; but if this, too, be rejected, it is better to postpone, for the time, any further attempts to supply nourishment and return to hot water. If the stomach can retain the whey, the child may be allowed to take it in considerable quantities, sucking it through the bottle like any ordinary food. If after a few hours there is no signs of sickness, a desertspoonful of fresh cream may be shaken up in the bottleful of whey. Milk in any shape, even breast-milk must be strictly forbidden in these cases.

If the vomiting is very obstinate and resists all ordinary treatment, it may be often arrested by washing out the stomach. One washing is usually effectual; if properly carried out, the process has rarely to be repeated.

It is important to take early steps to restore its lost elasticity to the skin, and for this object there is nothing which can can be compared in value to the brandy pack. If there is little sickness, fifteen to twenty drops of nitrous ether may be given every few hours in a spoonful of water to stimulate the action of the kidneys. The progress of the case must be vigilantly watched, and any sign of exhaustion combated by energetic stimulation. The child must be placed for five or ten minutes in a warm mustard bath; and afterwards brandy (ten to thirty drops) must be administered in a little hot water, and repeated at short intervals, until the warmth of the extremities is restored. It must be remembered that a high internal temperature is compatible with considerable coldness of the surface; and that it is of extreme importance to encourage the heart's action and improve a general circulation. The torpor into which the patient falls is the most alarming feature of the complaint, and our pressing want is a diffusible stimulant, which will have a sufficiently invigorating effect upon the heart to enable it to struggle with some hope of success against the stupefying influence of the absorbed toxins. If such a thing could be discovered, we would have in our hands a weapon which might materially change for the better the too common issue of the illness. I have made trial of many varieties of cardiac stimulant, but the only one from which I have seen any appreciable benefit has been strychnia, given hypodermically. A child six months old will often show some sign of returning animation under the influence of a quarter of a drop of the strychnia solution of the British Pharmacopœia, but to maintain the improvement the dose must be repeated every three-quarters of an hour or so, and even then it too often fails to ensure any lasting amendment. The strychnia injection may be combined with three or four drops of sulphuric ether to increase its stimulating effect. All this time the child must be kept in a horizontal position, and be disturbed as little as possible. Of himself, he shows no desire to move; indeed, his exhaustion is such that he has no power of raising even his head from the pillow.

If the vomiting continues in spite of the measures already recommended, small doses of calomel (gr. one-twelveth) with a grain of sugar of milk given every half hour, will often quiet the stomach after only a few repetitions of the dose. If this does not succeed, we may alternate each powder with a draught, containing one-sixth of a minim of creosote and a half a minim of tinct. iodi in a teaspoonful of camphor water, as recommended by Dr. J. Strahan. All the time the mustard and linseed poultice must be kept applied to the epigastrium. The calomel treatment often acts beneficially upon the bowels as well as the stomach, especially if each dose be combined with one-sixth of a grain of Dover's powder. Bismuth in large doses is often recommended, but unless given with an antiseptic, has never seemed to me to have the slightest effect in allaying the irritability of the stomach or arresting the purging. The use of the salicylate of lime was advocated by Mr. Walter Kilner. I prefer to give the salicylate of bismuth, made by combining carbonate of bismuth with salicylate of soda, as in the following prescription:—

℞ Bismuthi carbonatis	gr.X.
Sodæ salicylatis	gr.J.
Glycerini	M.XV.
Acquam ad	3.J.

Sig. To be given every four hours (to a child of six months old).

Another drug to which great value has been attached, is the bromide of potassium. It is said, in doses of seven or eight grains every two or three hours, to produce a rapid improvement in the number and frequency of the stools.

A high temperature must be lowered by enemas of water at 80°, as recommended for inflammatory diarrhea. These injections are also useful as a means of conveying fluid to the shrunken tissues when water by the mouth is thrown back at once. Five or ten ounces of the normal saline solution may be used at a time, or a smaller quantity may be given hypodermically, and I have found that two ounces injected under the skin into the loose tissue of the back were absorbed slowly, and seemed to give relief. Unfortunately, if the vomiting be unabated, the small amount of liquid introduced by this means can do little to make up for the continued draining away of fluid from the body.

If the case be seen early, before symptoms of exhaustion have set in, the complaint may be sometimes arrested by morphia administered hypodermically. The sulphate of morphia as being less likely to be converted into apomorphia in the blood, is recommended by Dr. W. Hardman for the purpose. The quantity employed need not be large; in fact, a small dose appears to be nearly as effective as a large one. For a child a year old, one-thirtieth of a grain may be used, combined with five or six drops of ether; and the injection may be repeated in an hour's time if the symptoms continue. The effect of the sedative so introduced is to arrest the vomiting and purging almost immediately, without producing any signs of narcotism. The child afterwards requires energetic stimulation to help him out of the state of weakness into which he has fallen. An infant should be fed with white-wine whey. An older child can take the brandy-and-egg mixture in frequent doses; and it is very important to keep the extremities warm. In many of these cases, after the arrest of the more pressing symptoms, very vigilant and intelligent nursing is required to enable the child to resist successfully the depressing effect of the illness. Often there appears to be a tendency to failure of the heart's action. After making a step or two towards recovery, the patient may fall back again into a state of asthenia, and die, without any return of the gastro-intestinal symptoms or the occurrence of any inflammatory complication to explain the unfavorable change. This tendency must be combated by mustard-baths, stimulating frictions to the skin, hot applications to the front of the chest, and brandy given in frequent doses. A strong mustard poultice, placed for a few minutes over the heart, is often of service, as well as the subcutaneous injections of ether and strychnia, as recommended above.

In the attacks of choleraic diarrhea or summer cholera which occurs in older children, the use of morphia hypodermically is equally valuable. A sixteenth or twelfth of a grain may be used, and improvement often follows very quickly.

A little girl, aged seven years, was seized at one p. m. with violent vomiting and purging. The bowels acted very frequently, without any straining, and the stools consisted, after the first few evacuations, of thin serous fluid. The vomiting continued. The child looked pinched and blue, and was excessively feeble. When seen at four a. m. the surface was cold, and no pulse could be felt at the wrist. The stools had the appearance of faintly tinged water. The thirst was intense. One-sixteenth of a grain of morphia was at once administered subcutaneously, and the child was put to bed with a hot bottle at her feet. The diarrhea then ceased, and although the vomiting recurred three times afterwards, it was each time excited by the swallowing of milk. At nine a. m. the temperature was 100.4, and a few hours afterwards—eleven hours after the injection it was noted: "Condition greatly improved; much stronger; some blueness about the mouth; eyes sunken; tongue slightly furred, not dry; still excessively thirsty; complains of no pain; pulse fairly good, 138." After this note, the child only vomited once or twice, and the bowels only acted on two occasions, the stools each time being thin and offensive. The patient was soon convalescent.

The diarrhea which sometimes succeeds to an attack of infantile cholera must be treated as directly under the head of inflammatory diarrhea.

APPENDICITIS, TYPHLITIS, PERITYPHLITIS.

BY

HERMAN B. SHEFFIELD, M.D.

Instructor in Diseases of Children at the New York Post Graduate Medical School and Hospital; Visiting Physician (Dieases of Children) to the Philanthropin Hospital, Northwestern Dispensary, and to the German Poliklinik; Associate Babies Hospital Dispensary; Fellow of the New York Academy of Medicine, etc.

Until recently the prevalence of appendicitis in early childhood was not taken very seriously by the profession at large, and hence, either because of its skepticism, or for want of understanding of the pathology of the disease, a great many cases of acute or chronic appendicitis were either overlooked, erroneously diagnosticated, or newly discovered as "food fever," "cyclical vomiting," and the like. Nowadays, the occurrence of appendicitis in children and even in sucklings is no longer doubted. On the contrary, in view of the frequency with which the vermiform process is found implicated in the course of severe infantile gastro-intestinal disease, and its tendency by its relatively greater length and width to favor lodgment of foreign bodies (such as fecal concretions, worms etc., which act as sources of infection), there is ample reason for the belief that appendicitis is at least as common in children as in adults. As in the latter the severity varies from simple inflammation to fatal gangrene, depending of course upon the type and virulence of the causative bacteria and the promptness with which it is discovered and treated.

Pathologically the simplest form of appendicitis consists of a catarrhal inflammation of the appendix. Its mucosa and follicles are reddened and swollen, and their secretion more abundant than normal. The lymphatics of the walls and of the surrounding structures are congested. Gradually the submucous and serous layers become involved and the appendicular lumen narrowed. In mild cases the obstruction in the appendix subsides, allowing the escape of the mucous and bacterial contents and, with the exception of slight thickening and adhesions, rapid *restitutio ad-integrum* takes place.

In more severe cases the obstruction continues, the appendix becomes more and more distended, the mucous secretion purulent, the muscular coat, owing to its effort to expel the appendicular contents, thicker, hypertrophied, while the mucous membrane, as a result of pressure from within the appendix, undergoes gradual atrophy and ulceration. Even in this stage of the disease spontaneous recovery by encapsulation and absorption of the abscess is still possible.

In the majority of instances, however, instead of being absorbed, the purulent content of the appendix gradually, or rapidly, increases in quantity, and finally perforates the over-distended, more or less ulcerated appendix. The escaping pus finds its way where there is least resistance, into the cecum, small intestine, rectum, urinary bladder, gall-bladder, diaphragm or into the free peritoneal cavity. The pus may also penetrate into the retroperitoneal cavity or externally, usually in the right iliac region.

Sometimes the inflammation is almost from the start so intense that perforation and gangrene of the appendix, and escape of its virulent contents into the peritoneal cavity occurs before a diagnosis can at all be arrived at. In these cases it is not rare to find also old inflammatory adhesions, indicating that the patient has once before gone through an attack of appendicitis (recurrent appendicitis), which probably was mild and had escaped attention.

The great variability in the course and termination of the afore-mentioned pathological processes can readily be explained primarily by the difference in the virulence of the casual bacteria, no single type of which having thus far proved to be the specific etiologic factor of appendicitis as a whole or of any of its forms. The bacteria found in the inflammatory products of the disease are principally streptococci, staphylococci, the bacterium coli, the pneumococcus, influenza bacillus, etc. It is not at all uncommon for appendicitis to develop in connection with pneumonia, influenza, gastro-enterocolitis, etc., thus tending to prove its infectious character. Prominent etiologic factors also are: Retention of fecal concretions, foreign bodies (pins, fish-bones, cherry-stones, or orange-pits), intestinal worms, traumatism, exposure to cold and wet, etc. Male children (being more often exposed to the last named causes) are more frequently attacked by appendicitis than female. Constipation and dyspepsia serve as predisposing causes.

Acute appendicitis may set in very suddenly or be preceded by premonitory signs consisting of frequently recurring attacks of dyspepsia, with colic and constipation. It is quite probable, however, that the dyspeptic symptoms are in reality the manifestations of recurrent catarrhal appendicitis of very mild type. Appendicitis once established, the little patient stops eating, is nauseated, vomits and cries because of pain in the abdomen. The latter is more or less rigid. The anorexia is usually complete, and, if the child is forced to eat, the food is sooner or later ejected. Infants may continue taking the bottle or breast, to quench the ever-present thirst. In very mild cases nausea may replace the vomiting, but the latter symptom is always present in moderately severe cases and is quite severe in grave appendicular involvement, especially when the peritoneum is implicated. Pain, spontaneous and on pressure, is invariably present during an attack, but it varies greatly in severity irrespective of the pathologic condition of the appendix. Sudden cessation of pain is supposed to signify mortification of the underlying structures, and, hence, looked upon as a bad omen. Young children are usually unable to localize the seat of the pain they are suffering from; little reliance, therefore, should be placed upon their localization. On the other hand, pressure pain can readily be elicited, and, as a rule, is most intense over the region of the appendix, which in children does not always correspond with "McBurneys point"—the appendix is often situated either higher up or lower down in the pelvis. Sometimes even infants indicate the presence of pressure pain by attempting unconsciously to ward off the examining hand, by placing their little hands over the most painful spot. Rigidity of the abdominal wall forms a pathognomonic sign of the disease and proves of great help in the diagnosis of appendicitis to one familiar with the peculiar sense of resistance of the abdominal wall to pressure. As a rule, the abdomen is distended, but it may also be contracted and as hard as a board. On gentle palpation the rigidity yields sufficiently to permit the detection of tumefaction—the underlying thickened appendix in catarrhal appendicitis, or the variously sized, hard or doughy, immovable mass, in appendicular abscess. In some cases the tumefaction may be seen to project beyond the normal level of the skin, and be left in the rectum, a digital examination of which, therefore, should never be omitted. Appendicitis is ordinarily associated with complete constipation; the attack may, however, be ushered in by diarrhea, or, rather, pseudo-diarrhea, since the stool is derived chiefly from the lower part of the colon, superinduced by the sudden irritation within and about the appendix. As the disease advances, in consequence of pressure by the growing tumefaction in the pelvis, there may be severe tenesmus (as well as strangury) with or without a bloody discharge,—a symptom which is very apt to mask the diagnosis. The temperature is moderate, from 101° to 103° F. in catarrhal appendicitis, and as high as 105° F., in abscess formation. In favorable cases the pulse and respiration agree with the rise or fall of the fever. Low temperature with a high, feeble pulse is considered a bad omen, an indication of profound sepsis.

Diagnosis.—Cases presenting the afore-mentioned typical symptoms of appendicitis can be diagnosed as readily in the child as in the adult. In fact, owing to the thinness of the infantile abdominal wall, and the proportionately large size of the appendix, it is usually not difficult to palpate an inflamed appendix unless it be—as it sometimes happens—misplaced somewhere beyond the reach of palpation. On the other hand, there is often considerable difficulty to differentiate an appendicitis pursuing a very violent course with marked tympanites, shock and collapse, from a grave attack of acute gastro-entero-colitis, typhoid with perforation, intussusception, hernial strangulation and the like. Even in such cases careful analysis of the typical symptoms of the respective diseases rarely fails to lead to a correct diagnosis.

Course and Termination.—The severity or mildness of the onset of an attack of appendicitis bear no positive relation to the further course of the disease. After the inflammatory process has, so to say, localized itself, which occurs usually within the first twenty-four or forty-eight hours, in the majority of instances the physician is able to conclude what sort of a case he is dealing with. By that time he will find that in catarrhal appendicitis the vomiting has partially or entirely ceased, the pain diminished, the abdominal rigidity lessened, and the tumefaction become less palpable. The child is able more easily to move about in bed, to have a few hours of comfortable sleep, occasionally to expel flatus, and to express a desire for food. Uneventful recovery may now take place within ten days, i. e., as far as subjective signs are concerned. In the majority of cases some morbid anatomical changes remain in the appendix and adjacent structures, e. g., inflammatory adhesions, kinking, constriction of the lumen, etc. The region of the appendix thus remains a *locus minoris resistentiae* for life, subject to recurrent attacks of inflammation and its sequelæ.

Sometimes after an apparently benign course of a few days duration, either without discernible cause or as a result of gross errors in diet, undue exercise, and the like, there is a sudden change for the worse. The symptoms spoken of to occur with the onset return, sometimes even in more pronounced form; the patient vomits, has chills, headache, severe pulling and throbbing pain in the abdomen. The temperature rises, the pulse increases in frequency and tension, respiration is quick but superficial (the patient is afraid to take a deep breath or to cough owing to the increase of the pain with the descent of the diaphragm); the child is restless and sleepless, lies principally on his back with his right leg flexed (attempt to extend it aggravates the pain) and cries with pain on being moved about. Palpation reveals a distinct oblong tumor, the distended appendix, which is very tender and gives rise to a gurgling sound on pressure. If the disease is not checked by operation the indurated mass enlarges, loses its circumscribed character, becomes more doughy in consistency, and dull on percussion—in short, presents unmistakable signs of a fluid content, an abscess. This clinical picture of suppurative appendicitis does not by any means follow only the catarrhal variety; on the contrary, quite often it is in full development within the first two or three days of the disease and, if the abscess is not promptly opened it bursts, often giving rise to general peritonitis and quick death. More rarely the accumulation of pus occurs very slowly and gradually and even remains in abeyance for a period of weeks or months, during which time the abscess becomes walled off from the general peritoneal cavity by inflammatory adhesions, and may finally be absorbed, or with recurrent attacks of appendicitis perforate the sac and wander in any of the neighboring structures, sooner of later leading to the grave symptoms previously spoken of.

In another group of cases—fulminating, gangrenous appendicitis—the symptoms are extremely alarming right from the beginning of the attack. In the midst of apparent good health, or preceded by slight malaise, vomiting, colic, prostration and collapse, following one another in rapid succession, and often without palpable local appendicular tumefaction, or any other signs pathognomonic of appendicitis, the typical picture of general septic peritonitis is in its full sway,—sometimes within twenty-four hours (usually after from three to five days) carrying the little victim to the grave. In such cases post-mortem examination reveals either pre-existing infection of the peritoneum, or sloughing of a gangreous appendix, involvement of adjoining blood vessles (thrombophlebitis) and general sepsis (pyemia).

In view of the uncertainity of the course of the disease, every case of appendicitis should sooner or later be operated upon. This opinion is in accord with that held by the best clinicians of this age. The profession is still divided, however, on the question of the time when operative procedures prove most propitious for the patient's uneventful recovery. In solving so difficult a problem, the physician must be guided: 1, by the condition of the patient, and 2, the progress of the disease.

1. The Condition of the Patient.—It certainly would be folly to operate on a child in moribund condition, or on one synchronously suffering from a systematic fatal disease per se, e.g., miliary tuberculosis, diabetes, grave heart or kidney disease, and the like. An operation should be deferred in infants under six months of age because of the lack of resistance of the patient, and in view of the fact that in very young infants spontaneous recovery (at least temporary), by absorption of the pus, or rupture of the abscess in the rectum are by no means rare.

2. Progress of the Attack.—Mild catarrhal appendicitis, with the first attack, progressing favorably during the first four days, may be left alone until the quiescent stage, when the appendix should be removed. Severe or recurrent catarrhal appendicitis failing to improve after the fourth or fifth day, or, showing incipient symptons of suppuration (increased leu-

cocytosis), should be operated upon at once; or, if for some reasons an operation cannot be undertaken, treated medically for a week or ten days longer, until the abscess has become circumscribed and encapsulated, when an operation should be performed without further delay. The same rule applies also to all cases of slowly developing suppurative appendicitis, the physician being constantly on the guard, however, for sudden threatening symptoms of perforation,—in the latter event demanding prompt surgical interference. Finally, an immediate operation is imperative in all cases of perforative and gangrenous appendicitis, procrastination being almost invariably fatal.

In advocating operative procedures I presuppose that a competent surgeon is within reach to perform the operation. Otherwise the patient will fare better under medicinal treatment, which though only palliative is nevertheless potent to tide over the acute symptoms—often to hold the patient alive long enough until the services of a competent surgeon can be enlisted. The discredit cast in various quarters upon the surgical success in appendicitis to a great extent is due to the fact that the statistics compiled to show the bad results of operative treatment of appendicitis embrace the work of the competent and incapable surgeons alike, failing to specify that the work of the incompetent is chiefly responsible for the mortality. It is one thing for a surgeon skillfully to remove a purely inflamed appendix, and quite another to be able successfully to meet emergencies in badly complicated appendicular abscess or gangrene. The sooner, therefore, the attending physician will appreciate the fact that in the majority of the promptly treated cases the prognosis of appendicitis depends solely upon the skill of the surgeon, the quicker will the mortality from this affection dwindle down to insignificance.

When a patient is seen early, it is advisable to administer one dose of castor oil or calomel with bicarbonate of soda, and to wash out the stomach and intestine, to clean the alimentary canal of its contents. This should be followed by an occasional administration, in the form of suppositories, of very small doses of codeine or opium, to arrest peristalsis and to keep the child perfectly at rest and free from severe pain. No medication by mouth. During the acute stage of the disease, the constant application of ice is useful to relieve pain and arrest rapid progress of the inflammation. Thirst should be relieved by small quantities of water or tea, and as long as anorexia exists, no attempt at forced feeding should be tolerated. An occasional teaspoonful of milk, beef-juice or broth, will prove sufficient to sustain life for days. Any indiscretion in the diet is hazardous. More liberal feeding may be practiced after subsidence of the acute symptoms, after repeated escape of flatus, or partly formed stool. Even then extreme caution is commended, limiting the dietary to slowly increasing quantities of milk, broths, albumin water; in older children, fresh soft-boiled eggs, milk toast, small portions of fine cereals, etc. For marked flatulence, atropine hypodermatically. Stimulation by means of strychnine and normal saline solution, both subcutaneously, should be resorted to in accordance with indications. As the patient improves, medication in the form of stomachics, intestinal antiseptics and laxatives may be administered by mouth, and the supply of nutritious food increased, so as to heighten the patient's vitality for an early operation. Children convalescing from an attack of non-operated appendicitis should not be taken to any resort where a competent surgeon is not within immediate reach. Danger always lurks behind a diseased appendix.

127 West 87th St.

SOCIETY TRANSACTIONS

NEW YORK ACADEMY OF MEDICINE.

Section of Pediatrics.

DR. WILLIAM SHANNON IN THE CHAIR.

A Case of Secondary Anemia.—Dr. Charles Hermann presented a baby two years of age, whose family history was negative. His personal history showed that he had had pertussis and some digestive disturbance. He was admitted to the Babies' Hospital because of enlargement of the abdomen. Upon examination it was found that he had marked anemia, that the spleen was six inches below the costal margin in the axillary line and the liver one and one-half inches below the costal margin in the mamary line. At this time an examination of the blood showed hemoglobin 40 per cent; red blood corpuscles, 2.800,000; white blood corpuscles, 13,000. There were 30 nucleated cells in 300 counted. Two months later the blood was again examined and showed hemoglobin 30 per cent; red blood corpuscles, 2,544,000; nucleated red cells, 55 in 300. The patient began to improve at this time and was discharged three months later when the spleen was only three and one-half inches below the costal margin, the hemoglobin, 70 per cent; red blood corpuscles, 5,280,000; only occasional nucleated red cell was found.

This disease was considered a form of secondary anemia in which it was sometimes difficult to determine the primary cause when syphilis, tuberculosis or chronic indigestion were not present. Again these infections might not be accompanied by these blood changes. There might be a congenital defect in the blood-forming organs as a certain number of these cases gave a history of anemia from birth. In the case of premature infants or twins there might be a deficiency of reserve iron in the liver which in a few months of exclusive milk diet might be exhausted, or it might meet the demands under normal conditions but could not do so in case of intercurrent disease. This might explain why this condition occurred after certain constitutional diseases.

A Case of Splenomegalia.—Dr. Charles Hermann also presented a boy, 12 years of age. His parents and eight brothers and sisters were healthy with the exception of one that died in infancy. The patient had had measles and pertussis but showed no signs of syphilis and has never had chills and fever. Dr. Hermann had first seen the patient in 1906 at the age of seven years. According to the statement of his mother the enlargement of the abdomen had existed since he was four years of age. For the past six months he had suffered from abdominal pain and epistaxis had occurred three or four months ago. His condition had been diagnosed as splenic anemia by Dr. James. The blood examination showed hemoglobin 75 per cent; red blood corpuscles, 4,390,000; white blood corpuscles, 4,000; polymorphonuclears, 70 per cent, lymphocytes, 29 per cent; eosinophiles, 1 per cent. The spleen extended one-half inch beyond the median line and three inches below the umbilicus and the liver extended two inches below the costal margin in the mammary line. Blood examination made at various times during the past five years showed that hemoglobin varied from 30 to 75 per cent; the red blood corpuscles from 2,560,000 to 4,000,000; the white blood corpuscles from 2,400 to 6,800; the polymorphonuclears from 51 to 70 per cent; the lymphocytes from 29 to 48 per cent. The present time the examination of the blood showed a condition midway between these extremes. No abnormal changes in the shape or size of the cells was noted and both the Wasserman and vonPirquet tests were negative. Several years ago the boy had

had a tooth pulled which was followed by oozing from the gums and a month after this occurrence he had had abdominal painand vomited a largeamount of blood. No noticeable change in the patient's condition had been noticeable during the past five years. The three conditions that might be considered in this case were splenic anemia, Banti's disease, or the primary splenomegalia of Gaucher. The fact that ascites was absent could not be positively against Banti's disease as this symptom was characteristic of the third stage only in this disease and the fact that the urine was normal and the liver large so early in the course of the disease would be rather unusual. This was the only case in the family which was against a diagnosis of primary splenomegalia. Hemorrhage also was very unusual in this condition. After serving the patient for five years it seemed that the first diagnosis, splenic anemia was the correct one. Mercury, quinine, arsenic and x-ray treatment had produced no noticable effect in the condition of the patient. If he became worse removal of the spleen might be advisable.

Discussion.

Dr. Nathan E. Brill said that he would confine his remarks to the second case as that was particularly interesting to him. The whole subject of enlargements of the spleen and liver was enveloped in obscurity especially where there was no infection to account for the condition. However, this patient appeared to him to present a definite clinical entity. He had prevously called attention to the possibility of diagnosing this condition and had given it the name of its discoverer, Gaucher. The pathology of this condition was unique. The spleen, liver, portal system, lymph glands and bone marrow underwent a peculiar endothelial transformation. The proliferating endothelium showed cells whose appearances were characteristic, and so far as he knew, were not imitated by any other disease of those organs. This condition might be differentiated from splenic anemia and Banti's disease by the longer duration of the disease in the Gaucher type, the unpronounced anemia of the simple chlorotic type which became marked only toward the end of the patient's life; the peculiar and definite pigmentation of the exposed parts of the skin; the entire absence of jaundice and ascites; and the remarkable feeling of comfort that these patients experienced, even though the spleen and liver might reach colossal size. The liver was much larger in Gaucher's disease than the splenic anemia. The presence of wedge shaped conjunctival thickenings on one or both sides of the eye with the bases toward the cornea and the angles extending toward the nasal or temporal angles had been present in every case of Gaucher's disease that had been seen and his observations had included a larger series than that of any other observer. The disease might affect only one member of a family or more than one of a family might develop it. Dr. Brill had reported four of the thirteen cases reported up to 1908 and in these he had made the diagnosis and so reported it during the lives of the patients; later his diagnosis was confirmed by autopsy. Since that time he had seen two cases, one the only member of the family affected and the other being the second one in the family to suffer from the condition. The blood picture in this disease was that of a simple anemia of the chlorotic type, but showing a decided leucopenia. Later the disease hemorrhages and eochymoses might occur. The progress of the disease was much slower than any form of splenic anemia; he had a patient 46 years of age who had the disease since she was nineteen years of age and she was still active though the spleen and liver almost completely filled the abdomen. Dr. Hermann's case had the very large liver and spleen, the wedge-shaped conjunctival thickenings, the peculiar bronzing of the face, neck and hands. If the patient's urine was examined there would be no bile found though there might be some pathological urobilin of Jaffe. The blood serum likewise would show an absence of bile. From these statements it was clear that he could not agree with the diagnosis made by the gentleman who presented the case, but felt convinced that the patient was suffering from Gaucher's disease.

Dr. Charles Hermann, in closing the discussion, said he did not believe it possible to make a positive diagnosis of primary splenomegaly in this case from the clinical manifestations, because the blood findings were not characteristic and the slight pigmentation on the nose was not pathognomonic and furthermore, severe hemorrhage from the stomach had not been reported in any of the undoubted cases of primary splenomegalia of the Glaucher type.

A Case of Food Allergy. Idiosyncrasy to Eggs, Oats, and Almonds, Due to Anaphylaxis.—Dr. Oscar M. Schloss reports this case. The patient was a boy who was now eight years of age. When he was ten days old he was given white of egg in barley water for diarrhea and there seemed to be no ill effects. At the age of fourteen months he was given soft-boiled egg and immediately began to cry and claw his mouth. His tongue, lips, and buccal tissues became swollen to enormous size and large urticarial wheals appeared about the mouth. After this the child refused to take eggs. If he even played with egg shells they produced urticaria over the hands and arms. On one occasion he was given boiled egg between two slices of bread when he showed the above mentioned symptoms and became very ill showing symptoms of violent intoxication. No matter in what form or how small the quantity of egg taken these symptoms always ensued. Two years ago he was given almonds for the first time and these toxic symptoms followed. Oatmeal produced the same symptoms though in a milder form. In order to determine the constituents of these foods which were responsible for the toxic action he administered a cutanous inoculation of the active substance by means of the von Pirquet border and found that a distinct urticarial wheal was produced at the site of the inoculation. This wheal appeared in from five to fifteen minutes after the inoculation was made. In stronger solutions mere contact of the active substance with the unbroken skin produced wheals. The reaction always disappeared in from one-half to one hour. Control experiments demonstrated that the reaction was not due to any chemical or mechanical irritation but that it was caused only by certain food substances and to a marked degree by those to which the patient had shown such a pronounced idiosyncrasy. Other experiments showed that the reaction was produced by the protein substance only and also that proteins from the same source varied in activity. It seemed obvious that this idiosyncrasy was due to one of the two causes—either the patient lacked some protective substance present in normal individuals, or he was sensitized in the same manner as an animal became sensitized when given a single injection of a foreign protein. He could not demonstrate any lack of protective substance, but the fact that it was possible to sensitize guinea pigs by means of the patient's blood serum showed that the condition was due to protein sensitization.

The next problem to solve was that of immunizing the patient. For this purpose he used a single protein, as in this way he could ascertain whether the patient's hypersusceptibility to the three different foods was in any way related. Ovomucoid was selected as the protein for immunization. At first ovomucoid in capsules was administered three times daily in doses of 2 mg. The doses was increased very slowly at first and then more rapidly and the progress of the immunization was determined by the skin reaction. At the end of the two months the patient was taking 100 mgs. of ovomucoid daily and the cutaneous reaction began to decrease markedly, being produced only by comparatively strong dilutions. At the end of another six weeks' treatment the patient could eat one-sixth of an egg and from this time was fed small quantities of egg or food containing egg without showing any of the former symptoms. The proteose from oatmeal caused no reaction in dilutions as high as 1-100 and oatmeal had been eaten a number of times without causing any unpleasant symptoms. This seemed to indicate that the idiosyncrasy to the three foods was in some way related. The administration of the ovomucoid caused no disagreable symptoms.

Dr. Henry Koplik said that many children showed an idiosyncrasy to eggs and one should be very cautious when giving egg to a child under one year of age for the first time. It was a mistake to attempt to overcome this idiosyncrasy by feeding the egg in some other food as soup for the same result nearly always followed. In exceptional cases milk was badly borne. Koplik related several instances of this kind that had come to his attention. He told of two children in the same family who showed an intolerance of milk but were able to take mother's milk. If Dr. Schloss's observations were confirmed they might lead to important results in the feeding of these children.

Dr. Charles Gilmore Kerley said that there were many children who could not partake of milk or eggs because of some special intolerance for them. In his own experience it was the milk that gave the more trouble. Only two months ago he saw a fatal case in consultation. The mother wished to wean the infant. All the cow's milk that was given during the first twenty-four hours was vomited. Finally two ounces of it was retained until ten o'clock in the morning when the baby went into collapse and shock, becoming for the time almost pulseless. The patent presented the appearance of the cases seen with symptoms of acute intoxication. The infant could not be made to react by the use of hot baths or warm salt solution by the colon. The child gradually became weaker and died fourteen hours after the milk that was retained had been given. There was no doubt but that frequently, the giving of milk or eggs produced grave disorders in young children. Dr. Kerley had seen cases similar to those reported by Dr. Schloss. In another case the child was given a milk with a two per cent. (2%) fat mixture and immediately signs of collapse appeared. In many cases milk could not be given until the child was at least three years of age. If given, they showed signs of indigestion, coated tongue and other disturbances. One child he referred to could not take at first, was now twelve years of age and enjoyed and assimilated the milk well. Dr. Kerley called attention to the fact that idiosyncracies existed for other substances than food proteins.

An Unusual Case.—Dr. Charles Gilmore Kerley reported the case of a child six years of age who swallowed a watch. The watch lodged at about the level of the cricoid cartilage. It was removed by Dr. Robert Abbe with the use of a coin catcher. A skiograph was presented showing the watch in position in the esophagus.

Dr. Oscar M. Schloss, closing the discussion, said that the contaneous reaction was not always obtained in these cases. He was observing two cases in which there were marked intestinal disturbances and in which there was no continous reaction. Why they should expect a reaction in these cases he did not know. One case susceptible to pork with a resulting phenomena of urticaria and angioneurotic edema over the eyes, gave no cutaneous reaction at all but the subcutaneous injection of pig's blood serum caused a large area of erythema and, in a short time, the characteristic local reaction. Why in some cases a tolerance existed he did not know, nor did he know why certain idiosyncrasies existed. In many cases a tolerance for certain kinds of food was established, especially when taken in small amounts and this might explain Dr. Kerley's case where the idiosyncrasy for milk was overcome. Certain drugs affected people in somewhat the same way as did eggs, almonds and oats and this child was also due to anaphylaxis.

Albumin Milk. Its value and Indications in the Treatment of the Diarrheas of Children.—Dr. Henry Heiman read this paper. He stated that the usual method of treating the diarrheas of infancy by catharsis, starvation and the use of intestinal astringents in some cases brought about such a reduction in the resistance of the child that it readily succumbed to any intercurrent infection. Hence there was urgent need of a method of treatment which would conserve the strength of the patient and at the same time ameliorate the gastro-intestinal condition.. Finkelstein and Meyer in their studies on the alimentary factors concerned with the production of the intestinal fermentation had shown the predominant role played by the carbohydrates and salts. They had noted that the decrease or removal of one or both was followed by a corresponding diminution of intestinal fermentation and their studies had also yielded the fact that casein had a pronounced antagonistic action upon carbohydrate fermentation in the intestines. They showed that when casein was present larger amounts of carbohydrates could be given without producing fermentation. A comparison of the Eiweiss milk of Finkelstein and Meyer with cow's milk showed the following:

	Eiweiss milk	Cow's milk
Proteids	3.00	3.00
Fats	2.50	3.50
Carbohydrates	1.50	4.50
Ash	.50	.70

There were 370 calories in a liter of Eisweiss milk. Finkelstein used this milk in a series of 150 cases and had such marked success that his method had been adopted in many of the German clinics. Dr. Hermann said he had first used the Eiweiss milk in the latter part of the summer of 1910 and again in that of 1911. All patients admitted to Dr. Koplik's service at the Mount Sinai Hospital were given the Eiweiss milk for periods varying from two to ten days. The series of cases was unselected. They had followed the method of Finkelstein and Meyer in preparing the milk. This was as follows: A tablespoonful of Simon's essence of rennet (or two tablets of rennet) were added to one liter cf milk which was then placed in a water bath at a temperature of 42.C. for one-half hour. The milk was then filtered slowly through cheesecloth for about one hour, no pressure being used. A half liter of buttermilk was then added and a one grain tablet of saccharin. This latter made the mixture palatable so that children of all ages would take it. It was found that placing a piece of cheesecloth in the bottom of the seive facilitated the process of passing the casein particles through. Marked vomiting was seldom noticed after the administration of this food. The quantity of albumin milk taken corresponded to the amount of the usual feeding mixture for any given age. It could be seen from the coloric value of the albumin milk that the caloric needs of a child could be covered nearly as well by this mixture as by the ordinary milk mixtures. Finkelstein and Meyer advised the addition of carbohydrates in the form of malt soup or Liebig's extract of malt as soon as the quantity of the food taken represented one-tenth of the body weight, even though the stools had become normal. In their series of cases Dr. Heiman said that maltose had been added to the milk from the second to the eleventh day. If there was no gain in weight. Most of the German observers had continued the use of the milk from four to six weeks, but the service at the Mount Sinai Hospital being an acute one this could not be done so. In the severe cases weak tea was administered for from two to six hours before albumin milk feeding was begun, while in the less severe cases it was used from the beginning. A change in the character of the stools was noted in most cases in from three to five days. In nine cases, mostly of the severe type, improvement was not perceptible within five days but ultimate improvement did take place. In this series of cases they had not used castor oil, laxatives, opium nor astringents, but they had employed stimulants when indicated. In four acute cases no effect was noticeable at any time, but on the other hand, in some cases the change for the better was most striking. While the albumin milk did not necessarily produce a gain in weight unless carbohydrate was added, it checked the marked losses that occurred under ordinary treatment. In this series some of the patients showed a gain of from four to six ounces during the albumin milk feeding and loss of weight was noted in some cases, but in only two instances was it more than one-half a pound. In the series of 42 cases there were nine deaths and twenty of the cases belonged to the very severe type of the disease; this was a mortality of 21 per cent. In four cases the albumin milk was given for four days or less owing to the fact that the children were brought to the hospital in a moribund condition; excluding these cases the mortality would have been thirteen per cent. Of these 42 cases sixteen were under the age of six months and seven of these sixteen had the disease in a very severe form. These young children seemed to do as well on the albumin milk as the older ones. Besides impressions were more convincing in many instances than statistics and he felt justified in concluding after his observations that they had in the use of albumin milk made a distinct advance in the treatment of the diarrheas of infancy. Albumin milk was indicated in diarrhea of all kinds whatever the cause or nature. It was especially indicated in those cases in which there was marked emaciation as the result of long fasting. In New York it was possible to obtain the milk already prepared, thus overcoming one of the great obsticles to its use.

Dr. Rowland G. Freeman said he had found the feeding of lact-albumin an excellent recource in babies under three months of age. He used a modification containing whey, but thought they would have to acknowledge that in some cases a dried milk preparation had an advantage over ordinary milk modifications.

Dr. John Lovett Morse of Boston said that as the diarrheas of infancy were due to different bacteria it was difficult to see how one article of food could meet the demand of all cases. The bacteria in some types of diarrhea thrive on proteids, in others on carbohydrates; some diarrheas were due to chemical disturbances and some to abnormalities in the food. In view of this fact it was difficult for him to give an explanation for using albumin milk in all cases. It was easy to see that if the condition present in the infant was due to an organism that throve on carbohydrates that if that infant was fed on proteids the growth of that kind of bacteria would be inhibited. But the addition of lactic acid to the food would tend to neutralize the action. If, on the other hand, the diseased condition was due to an organism that throve on proteids, the withdrawal of sugar and the addition of casein would favor their growth. If the diarrhea was due to some lesion of the intestinal wall caused by the fermentation of sugar it was plain that taking away sugar would be beneficial, but here the irritating action of lactic acid would do harm. In this latter class of cases the feeding of the albumin milk seemed to be indicated. When the intestinal wall had returned to its normal condition the feeding of maltose seemed to be indicated. Dr. Morse had the Walker Gordon Laboratory prepare for him a mixture of cream, water and precipitated casein, made according to the method of Finkelstein and Meyer which contained very little lactose and salts and which could be varied to meet the needs of the individual case. In this way he avoided the addition of the lactic acid in the buttermilk. When the stools had returned to normal he added a preparation of dextrin maltose. This was a useful method of feeding but it was sometimes difficult to determine in just what case it was suitable. In a general way it was useful in those cases in which there were numerous watery, light-green stools which irritated the buttocks; these were the acute cases. Dr. Robert Bancker Talbot said that he has seen sixty babies in a ward almost all of whom had had their stools subjected to bacterial examination and the results were very interesting. They had tried to give that modified food which would meet the biological needs of the bacteria. He could not see how albumin milk could be of much value when they could not differentiate between the acute infections. There were babies who had living bacilli in the blood and it was difficult to see how the albumin milk could reach the organisms in the blood.

Dr. Linnaeus LaFetra thought that Dr. Heiman's results were very satisfactory. Some babies did not do well when an extra amount of proteid was added. Some years ago Dr. Chapin had told them that it was more rational to add casein than lact-albumin to the milk since the casein was a nucle albumin and contained phosphorus and iron which were so necessary to the development of the child. They had used ablumin milk at the Babies' Hospital in 1910 in infants with diarrheas with blood and mucus in the stools. Sixty-two cases were thus treated with the albumin milk and 21 of them had diarrhea of a severe type. These babies were placed on the albumin milk when they had fever and all of them but three improved. There were four deaths in the series. The albumin milk had been given for from two to ten days. It was thought advisable not to keep the babies on this milk longer unless they gained in weight. The use of albumin milk lessened the loss in weight during the acute period of the disease and the stools returned to normal more quickly than under any other method of treatment. He believed that all diarrheas were benefited by the use of the albumin milk.

Dr. Charles Gilmore Kerley thought that in considering Dr. Heiman's results it was well to bear in mind that the mortality from diarrheal diseases in children was exceedingly low during the summer of 1911. The cases met with were mild in character and in his twenty-four year's experience with these diseases he had never known a time when the mortality was so low. When one took this into consideration Dr. Heiman's results might not be so good after all. The work of the Berlin doctors could not be compared to that of the Babies' Hospital in New York; here the kind of babies brought in were what are termed "dead ones." Many of them were cases of auto-intoxication such as were seldom seen in Berlin. They had found lact-albumin most useful in the dysenteric form of the disease, but in children under one year of age it would not do at all. They could give the Eiweiss milk to these children in larger quantities and with a greater caloric value than by any other means. This method, however, was not of general application, it should be used only in selected cases.

Dr. Henry Dwight Chapin said he had used Finkelstein's method in the treatment of diarrheas in children for two years and he thought it had a restricted value in certain cases. He agreed with Dr. Morse in what he had stated, since many of these diarrheas were due to such very different causes. If a high protein was required it should be in such a form that it could be easily assimilated; it was the form of proteid that they gave in the milk that did good. If any good came from Finkelstein's method it was due to this factor. Maltose was the form of sugar he added to the milk; it was more quickly assimilated and absorbed.

Dr. Chapin believed that the mortality given by Dr. Heiman was rather high, and he was interested to know how his mortality compared with the mortality of those under the old treatment. Dr. Chapin believed that this method of treatment had a very restricted value in certain types and particularly in the dysenteric forms of diarrheas.

Dr. Henry Koplik said that they should give Finkelstein and Meyer credit for working out a way of feeding these children with diarrheas according to their own ideas, especially in regard to certain forms of these diarrheas. There were certain forms of milk very detrimental to babies when they were sick. Finkelstein argued that whey was deleterious to babies when they were ill; he also argued that casein in the milk was absolutely innocuous and rarely did harm; he also argued that it was dangerous to feed a baby on high prcentages of fat. He therefore constructed a food that was free from fat, as free from whey, but as rich in casein as he could possibly make it. He elaborated his ideas in regard to the feeding of these babies with diarrheas, especially those with autöintoxication and decomposition of the intestinal contents, He fitted the food for each case. The food was rather difficult to make. Finkelstein was right in stating that some of the younger babies would and others could not take it. This food, it should be remembered, was not always available in private practice. The mothers could not always make it because it was so difficult to prepare it. However, in the hospitals, this method of feeding could be readily carried out. Finkelstein did not advocate the use of this prepared milk in every case; so far as the cases were concerned, he did not see the very severe cases of intoxication and decomposition in Berlin that they saw in New York. The cases in Berlin were of much milder type than here. Many of the cases admitted to the hospitals were the marasmic cases and it was impossible to save them with any form of treatment or feeding. Dr. Koplik said that he was not especially impressed with the results obtained from the use of Eiweiss milk. The great difficulty of its preparation led him to exclude it in the treatment of these diarrheas and intestinal disturbances in infants. He was not yet willing to let go the older methods which had proved of value in his practice.

Finkelstein surprised himself when he found the preparation of milk could be used in babies of three months of age. There had been many other methods of feeding that had been as successful as his. There were some babies that could not take other foods but could take the Finkelstein preparation. Dr. Koplik said that he had seen instances in which the new born with intestinal decomposition seemed to be harmed by the use of every food used. In these he had used the Eiweiss milk but did not seem to be sufficient to sustain the infants. There was no food yet invented or placed on the market that would save a certain class of cases. It was not the food but the disease that killed these babies. Dr. Koplik emphasized the fact that he had not given up the older methods.

Dr. Henry Heiman said that his cases were not selected. There were forty-two (42) cases of diarrhea, especially of the catarrhal form, with blood and mucus in the stools, and he knew of no treatment which touch these cases and produce the desired results. Personally he believed the disease was a self-limited one like typhoid fever, lasting about ten days to two or three weeks. Of course a great thing of importance was the adminstration of the food. He did not believe there was any food which would give the babies so many calories as Eiweiss milk; this saved the weight and strength of the infants, getting them in better condition so that the recovery would be more prompt. Of more importance was the feeding in these cases, not the drugging.

Casein Milk and the Newborn.—Benfey's observations made in Finkelstein's clinic in Berlin, the "home" of the casein milk. In all, eighty-three cases were treated in newly born infants; twenty-two infants were in the first week of life, fifty in the second, ten in the third. In one case the age was unknown, but the weight, 2,300 grammes, makes it very probable that the infant was a very few days old. Among eighty-three cases there was only one failure, which was in an eight months' premature child with some edema and cyanosis. This child died after four weeks' observation. Benfey's results are very remarkable. In some cases the Wright curve remained stationary for some time. This was due to the fact that sufficient sugar had not been added to the food. One should start with an addition at least of three per cent. of sugar. Benfey in this connection, clearly shows the superiority of the maltosedextrin preparations over cane sugar. In cases free from infection (grippe, pneumonia, etc.) Benfey reports 100 per cent. of cures; in cases with infection, 71.8 per cent. In conclusion, the author says: 1, One gets better results with casein milk *if properly used* than with any other artificial feeding in newly born infants; 2, the daily amount of casein milk should be from 150 to 200 grammes to a kilogramme body weight; 3, the sugar that is added to the casein milk should never be less than three per cent. In general begin with five per cent. and go up to six, seven, or eight per cent. if the bowels remain good; 4, the malt sugar preparations give far better results than cane sugar.

Casein Milk in Gastroenteritis.—Beck used casein milk in 175 cases in infants. Of these cases 110 were dyspepsia, eight toxic enterocatarrh, forty enterocolitis, and seventeen decomposition (Finkelstein nomenclature). There were only twelve deaths among all these cases which could not have been averted with any other feeding. Four of these patients were brought into the hospital moribund and four had bronchopneumonia; of the other four deaths one was a case of toxic enterocatarrh, and three were very severe decomposition. According to Beck's observations fourteen days of casein feeding suffices in most cases (Finkelstein and Meyer recommend from six to ten weeks). Beck comes to the conclusion that casein milk offers the best method of treatment of diarrhea in infants.

RETROSPECT OF CURRENT PEDIATRIC LITERATURE.

Diseases of the Nervous System in Children

Under the Charge of

ARTHUR WILLARD FAIRBANKS, A. M., M. D.

First Assistant Physician, Department for Nervous Diseases, Boston City Hospital;
Assistant Physician for Nervous Diseases, Boston Children's Hospital;
Consulting Physician to the Perkins Institution for the Blind
and the Boston Children's Aid Society.

Cretinism.—In further review of Ducoste's article on cretinism one is somewhat disappointed to find that the lengthy second publication is but a repetition of the first part, already reviewed (*Pediatrics*). No new facts are presented, and the author clearly approaches the subject prejudiced in favor of the origin of the disease from drinking water. The objections to this hypothesis are minimized or ignored, while the hereditary theory is discounted without judicial consideration. While being partial to no single theory themselves, readers of this long discourse upon the subject, will be impressed by the obvious desire on the part of the author to strengthen in other minds the belief that exists in his own, that the one and only source of the affection is to be found in the water of what he terms "goitrogenous" springs. It is needless to repeat here the many facts that are incompatible with the easy acceptance of a theory of this kind, but as we see the disease in this country, almost wholly in its sporadic form, in communities using a common water supply, no such causation can be tenable and even in its endemic occurrence in Europe, the affection often leaves untouched hundreds of individuals using a water supply identical with that used by affected individuals, while it appears in small foci in some other district using water from an entirely different source, and it is known to affect individuals drinking nothing but raw water (cisterns). It is also very obvious that if the only, or the chief source of the condition were to be found in the drinking water, it would be impossible to explain the much greater predominence of goitre in the female sex.

As an argument against the hereditary nature of the affection, Ducoste cites the testimony of the mothers of the affected children, who assert that these children, at birth and for some time thereafter, are strong and as well as their unaffected children. This, however, is of no value whatever as evidence against the familial cause of the disease, for practically all of the degenerative familial affections are not evident at birth, but develop at some time in the later life of the individual. One need only cite, among others, amouratic family idiocy, Frederich's disease, the muscular dystrophies, hereditary spastic spinal paralysis, etc.

While we cannot accept the denial of an hereditary etiology in many instances of these affections (cretinism and goitre), we must not err, ourselves in denying value to other factors as possible inciting causes of acquired disease of the thyroid gland. The most valuable and also the most recent of the numerous references cited by the author are those of Kepin, who during the last four ages has published the results of his studies of "goitrogenous" waters, with reference to their radio-activity, their inorganic contents, etc. He believes that these waters contain radio-active substances that produce an alteration or disturbance in the regulation function of the thyroid gland over body metabolism. He claims to have proved the radio-activity of all such waters. His experiments on animals seem to indicate that this influence is in some way connected with the preponderance in these waters, of lime-salts, and possibly also of magnesium-salts. To a number of rats Kepin administered "goitrogenous" water, freed of its carbonic acid gas in a vacuum, with resultant precipitation of a large part of the lime-salts. These animals remained unaffected. To a second series he gave similar water which had been deproved of all its salts of lime by precipitation with caustic soda and subsequent neutralization with hydrochloric acid. These animals also remained unaffected. A third series were given similar water that was merely boiled a few moments. These animals developed goitre, although to a lesser degree than animals given unboiled water. Ducoste thinks that these experiments indicate that either the effect is due to the salts mentioned, or to some thermostable mineral, or perhaps some gas in a fixed state with the precipitate.

Bircher believes that the substance may be an organic poison in the form of a colloid. He administered water, dialyzed through parchment, to eight animals, none of whom developed goitre, although the water remaining in the dialyzer retained its pathogenic properties. It is hardly necessary to add that experiments on a much larger scale must be carried out, before any positive conclusions are possible in respect to such an etiology, but these experiments of Kepin and Bircher are certainly the most interesting as well as the most recent of all contributions to the subject of the experimental production of goitre or cretinism.

Diseases of the Skin and Uro-Genital System

Under the Charge of

EBERHARD WILLIAM DITTRICH, M. D.

Instructor of Diseases of the Skin, New York Post Graduate School and Hospital. Dermatologist, German Odd Fellows' Home and Orphan Asylum; Dermatologist Northwestern Dispensary; Ass't Surgeon, New York German Hospital Dispensary, Urology.

Some Clinical Experiences with Hot-Air Treatment.—Dr. M. Scholtz, Cincinnati, (*The Lancet Clinic*, Cincinnati, Ohio, Nov. 24 1911). Active hyperemia, brought on by hot air treatment is one of the oldest and most extensively used therapeutic principles, though it has been used unknowingly and empirically. Massage, electricity, blistering, cautery, large number of chemicals the most popular of which are mustard, turpentine and tincture of iodine—all these therapeutic agents owe their clinical efficiency to the ability of producing hyperemia. The different heat-applying devices, according to Bier are clinically beneficial on account of the intense arterial hyperemia induced by them. Bier and his assistant, Klapp, have demonstrated experimentally that hyperemia produced by heat is not limited to the skin, but penetrates the entire thickness of the exposed limb, provided the heat be intense enough, In other words, skin irritants or so-called derivantia do not act by rendering deep parts anemic and deriving the blood from below the surface, as their name suggests, but they produce just the opposite effect, viz., setting up deeply extending inflammatory hyperemia. The author finds the treatment beneficial in neuralgias and rheumatic affections. He highly advocates its use in gonorrhœal rheumatism, especially in cases, where vaccine treatment had no effect. Like Hartwell he would use it together with autogenous vaccines.

The latter says: In cases of gonorrhœal arthritis the hot-air treatment is particularly efficient and useful. As it is well known, gonorrhœal arthritis is a fairly frequent and was until lately a much dreaded complication. While a good many lesions clear up spontaneously, many others, especially those involving knee and wrist, come to suppuration or to organization of the exudate with subsequent limitation and lóss of the function. With the introduction of gonococci vaccine and serum treatment the prognosis of these cases improved considerably. But even now there is a large number of cases where vaccine treatment has no effect. One of the most extensive and well worked out series of cases was published by Hartwell, in the Annals of Surgery, 1909. He reports fifty-one cases of gonorrhœal arthritis treated with vaccine. His conclusions are that the autogenous vaccine gives much better results than stock vaccine. With autogenous vaccine, from a total of twenty-one cases, he had good results in nineteen. With stock vaccine, from a total of thirty cases, he had good results in twenty-three. In two cases of wrist joints where one became completely stiff and the other had only about one-half of its normal motion, Hartwell said vaccine seemed to have no effect on the pain and swelling in these two cases. Edema in the wrist joints was so marked that we have thought it must be a determining factor in these poor results with tissues so swollen, especially in a joint with so many small synovial partitions, these must be a considerable resistance offered to the blood stream, and antibodies could not be brought in a sufficient abundance into the inflammatory focus. Guided by this ' theoretical explanation, we have employed active hyperemia produced by hot air to stimulate congestion and carry off edema from the tissues. Edema was reduced, pain was relieved, and both had perfect results. "As shown by Hartwell's figures, vaccine treatment fails with the autogenous kind in almost ten per cent, with the stock vaccine in almost 23 per cent. Taking in consideration how seldom we have facilities in general practice to produce autogenous vaccine, we can readily see that even now there are many cases of gonorrhœal arthritis where we are thrown on different resources than vaccine. Hot-air treatment is not advocated here as a substitute for vaccine. These two methods of treatment do not oppose but supplement each other. Their underlying therapeutic principles are different and they need different indications. Vaccine having a germicide function and power to neutralize toxins, checks the acute inflammatory stage of the lesions, but it is powerless to undo damage already done to the tissue or to remove the products of inflammation. Hot-air treatment, on the other hand, with its pain-relieving, absorbent and solvent properties, is indicated just after the acute stage is over, and its primary functions is to remove the debris of the inflammatory products and to restore normal function of the joints. The combination of vaccine and hot-air treatment seem to me would go far toward saving function in the majority of gonorrhœal arthritis, and limiting surgical interference only to the cases that come to suppuration.

The author's conclusions are the following:

1. Hot air is a therapeutic agent of great intensity and power of penetration, safe in use, simple of technique and exact in dosage.
2. It has an exquisite and pain relieving property and has the unique power of absorbing and dissolving inflammatory exudates, granulations and adhesions.
3. It should be the method of choice in gonorrhœal and chronic rheumatic arthritis, being in the first supplementary to vaccine, in the second to salicylate treatment.
4. It is of extreme efficacy in rheumatic neuralgias and myalgias.
5. It is superior to any other method of treatment of sprains, bruises and various traumatic affections leading to stiffening and ankylosis.

The Undescended Testicle.—By Dr. W. D. Haines, (*The Lancet Clinic*, November 25, 1911.) Properly speaking undescended testicle is a misnomer, as the testicle does not descend, but the boy, in his development, ascends, grows upward from the testicle. Prior to the year 1903, at which time Bevan described his well known operation for the relief of this deformity, success in the correction of this trouble rarely followed any of the numerous surgical procedures devised for placing the testicle and retaining it in the scrotum. Many interesting and important clinical facts, however, were developed in the study of undescended testicle by those who had failed to correct the deformity. Two of the most important facts relative to the retained organ recite the marked tendency to malignancy and the uselessness of such an organ retained after puberty. Upon these facts most surgeons base the plan of procedure when consulted by this class of patients. Prior to puberty one should invariably try to free the organ from its faulty position and place it in the scrotum, and this may be successfully accomplished by the Bevan operation in all save a small percentage of cases. In the adult, owing to the liability to injury from its exposed position, the fact that the gland is usually sterile, and the more important fact that such retained testicle is peculiarly liable to undergo sarcomatous degeneration, lead to the conclusion that removal is the only safe operation for retained testicle in the adult. Undescended testicle occurs once in every five hundred male children, and is due to a number of causes, chief among which is patency of the vaginal process. The testicle, like the accessory thyroid, may be found quite a distance away from its normal anatomical position, perineum, thigh, etc. In the greater number of cases the retained organ will be found in the inguinal canal, somewhere between the internal and external rings, readily accessible to surgical procedures. In all of the older operations the practice of anchoring the testicle to something—scrotum, skin of the thigh, etc.—in imitation, prehaps, of the gubernaculum testis, was the real crux of the operation, and in the necessity for such anchoring lay the failure of these operations.

The operation of Bevan consists in thoroughly freeing the cord, dividing the peritoneal process and treating the stump of the sac as you would in doing a hernia operation. The cord is then further detached from the parietal peritoneum, and in some cases the testicle may, without further dissection, be placed in the scrotum and remain without anchoring. In the event of failure to bring the testicle into the newly made pouch in the scrotum, ligation and division of the spermatic vessels, after carefully separating the vas and its vessels, will in all save a small percentage of cases permit of easy adjustment of the testicle to the new surroundings. Transplantation of the cord slightly deminishes the distance between the point where the cord is adherent to the parital peritoneum and the bottom of the scrotum and is sometimes good practice. The operation is completed by closing the peritoneum about the testicle, tunica vaginalis, imbricating the fibres of external oblique and suturing the skin.

In doing the operation, remember that success will depend upon free dissection of the cord, that anchoring the testicle has no place in the modern operation, that the necessity for anchoring the testicle means faulty technique, and is a demand for further operative interference, more dissection or removal of the organ. Finally, in your enthusiasm to do a successful operation, do not forget that the testicle is sometimes congenitally absent. He has employed the above method in a series of twenty cases, whose ages range from five to eighteen, and with the result of placing and keeping the testicle or testicles, of whom four cases in this series were double, in the scrotum. In the cases of retained testicle in the adult we have removed the organ in preference to attempting to place it in the scrotum.

The Treatment of Pellagra.—Dr. E. H. Martin, Hot Springs, Ark' (*The Journal of the Arkansas Medical Society.* November, 1911). The conclusions the author of this paper arrives at are very interesting, inasmuch as they have special reference to the administration of two of the later Arsenic preparations, namely Saomin and 606.

1. Soamin will relieve all of the symptoms of most cases of pellagra; it fails only when the condition of the patient is so feeble, complications so severe or the disease so aggressive that it cannot be given in sufficiently large doses. Usually it causes no reaction unless given in over five-grain doses. Some cases would require more and could not stand the reaction from the endotoxins. Given in ordinery doses, it must be kept up for several years, the time yet uncertain. It is probable that if ten-grain doses were safe that there would be no relapse, at least so one physician reports to me.

2. Salvarsan causes no symptoms if properly given to healthy people. In short no disease germs, no reaction.

3. The fever following the administration of salvarsan to a case of pellagra is not due to the drug, but to the endotoxins released from the killed germs; is also diagnostic and prognostic and further proves beyond a

doubt that pellagra is a parasitic disease caused by a micro-organism vulnerable by "606".

4. That it is at least reasonable to believe that this organism is a spirochaeta or a spirillum.

5. That the character of the reaction, the duration of the fever especially, shows that the germs of the pellagra are located principally in the brain and spinal cord.

6. That the endotoxins released by the pellagra germs are so highly toxic to the human host that the dose of the drug must be proportioned so as to not destroy too many micro-organisms at one time, or the results may be disastrous to the patient. Observing patients given large doses of salvarsan, one can readily believe that in some cases a condition paralleling the so-called "congestive chill" in malaria might be produced.

7. Salvarsan does not cure pellagra in one dose, owing to the invulnerability of the germs at an early stage of development.

8. Prompt disappearance of symptoms shows that the older germs are killed.

9. That small and increasing doses, repeated within the time required for the development of the germs from the invulnerable stage of reproduction, gives us a rational treatment for pellagra and should offer as much certainty of a cure as quinine in malaria when properly given with respect to the seventh day.

Orthopedic Surgery

Under the Charge of

JAMES K. YOUNG, M. D.

Professor Orthopedic Surgery, Philadelphia Polyclinic; Clinical Professor Orthopedic Surgery, Woman's Med. College, Pa.

Artificial Tendons and Ligaments of Silk in Surgical Treatment of Paralyses.—By Nathaniel Allison. (*Am. Jour. of Surg.*, Jan. 1912). Surgical treatment of paralyses aims to improve muscle balance in a limb or the produce stability. Nerve anastomosis and tendon transference aim at the former; arthrodesis and artificial ligaments, the latter. Nerve anastomosis is the most recent procedure, it aims to produce a condition nearest the ideal, but it does not yet rest on a certain and scientific basis. Tendon transference gives good results when there are sufficient healthy muscles to insure muscle balance. Arthrodesis is justifiable only in a small number of carefully selected cases and only as a last resort.

Lange has been chief investigator in the use of silk for artificial tendons and ligaments, but the author does not follow his methods exactly. He uses silk boiled in one to one thousand bichloride solution, but not coated with parafin.

Allison suspends the foot in anterior foot drop by drilling the anterior row of tarsal bones, passing silk ligatures through the bone, carrying the ligatures upward, one end in the sheath of the tibialis anticus tendon, the other end in the sheath of the peroneus tertius tendon, and finally, by suturing the ends of the silk ligament to the periosteum of the tibia anteriorly and above the middle, or by fastening them to the bone itself.

He suspends the heel for calcaneus by drilling two holes through the os calcis, one on each side from above downward, passing the silk cord through the holes, thus making a loop through the bone, and carrying the ends upward along the tendo Achilles and forward through the interosseous membrane to the anterior external surface of the tibia, where they are fastened to the periosteum or the bone.

He also combines these two operations for a flail ankle, with or without pes cavus.

For back-knee, due to paralysis of the hamstring muscles he sutures two silk ligaments to the tibia below the tubercle, carries them upward in the sheath of the semitendinosus on the inner side, and in the sheath of the bicips on the outer side, thence forward to the anterior surface of the femur above the middle of the thigh and there fastens them to the bone, flexing the knee 15°.

After these operations the limb is fixed in plaster for six weeks, and the artificial ligaments are protected by braces for a year to prevent strain.

Arthritis Deformans.—By L. W. Ely, (*Am. Jour. Surg.*, Jan., 1912). The cause of arthritis deformans is unknown, but the author believes it will be discovered by the miscroscopist rather than by the clinician. He gives credit to the work of Nicholas and Richardson, but thinks the classification of Nichols, the division into atrophic and hypertrophic classes is deficient.

Ely believes that the two active tissues of the joint, the synovia and the lymphoid marrow, play the chief role in this disease; and that the ligament, the cartilage, and the bone (trabecula) plays only a passive part. The presence of lymphoid marrow is as essential to the integrity of the joint as the presence of the joint is to the integrity of the lymphoid marrow. Degeneration of the marrow is constant is arthritis deformans, and the disease cases after bony ankylosis of the joint. The synovia and the red marrow are lymphoid structures; and the frequent association of chronic joint disease with infection of other lymphoid and epithelial tissues, e.g., infections of the tonsils, chronic intestinal diseases, typhoid, influenza, syphilis; is well known.

Arthritis deformans is due to some definite infection, not necessarily, however, by one specific micro-organism. Inflammation of lymph nodes occurs in various diseases; in like manner occurs joint inflammation. This may be acute, as in a suppurating joint following scarlatina or pneumonia; or it may be slow and chronic, when it is known as arthritis deformans.

Careful search should be made in each case for a source of infection. Drugs should be administered only for a definite purpose. Passive motion is contraindicated. In a case of the severe and unveterate monoarticular type, an arthrodesis is to be considered.

Infantile Paralysis.—By F. F. Bowyer, M.D., (*Jour. of Med. Soc.* of N. J., Feb., 1912). Poliomyelitis is a widespread disease but occurring chiefly in the temperate latitudes of Europe and America. It occurs equally in both sexes and is more frequent during the second year of life than at any other period. The majority of the cases reported have occurred from June to October. The author states that the disease is due to a micro-organism which, after being stained with carbol-thionin, appears as a faintly strained bulrod. They are found free in the blood serum and within the red blood cells. It probably gives entrance to the body through the naso-pharynx. The inflammation is not confined to the grey matter of the cord, but may effect the grey matter of the medulla, pores, and cerebrum. Hence the term acute poliobyelo-encephalitis has been suggested. There is active hyperemia of the parts affected followed by infiltration by lymphocytes which produces pressure on the ganglion cells, causing greater or less injury to them. The different fibres of the affected nerves show a secondary degeneration.

Symptomatology and Diagnosis of Infantile Paralysis.—By Chas. H. Finke, M.D.,(*Jour. of Med. Soc.* of N.J., Feb., 1912). The author divides the course of the disease into four stages. (1) Initial stage: paralysis, usually fever, gastro-intestinal disturbances, convulsions, pain, etc.,—lasting a few hours to a week. (2) Stationary periods: continued flaccid paralysis lasting from a week to a month. (3) Regression, or improvement: recovery of some muscles and groups of muscles—lasting one to six months. (4) Chronic stage: atrophy, contractures, deformaties. But slight improvement occurs after six months from the onset of the disease.

Diagnosis is impossible before the onset of paralysis, except by lumbar puncture. The disease is to be differentiated from multiple neuritis, infantile cerebral hemiplegia, cerebro-spinal and tuberculous meningitis, infantile pseudo-paralysis of syphiltic origin (due to separation of the epiphyses of long bones), obstetrical paralysis (due to forceps).

The Treatment of Infantile Paralysis.—By Henry J. Bogardus. (*Jour. of the Med. Soc.* of N. J., Feb. 1912). The disease is contagious and all cases should be rigidly quarantined and all details of disinfection carried out as in other contagious diseases.

During the first stage of the disease the treatment is symptomatic, with urotropin 30 to 40 gr. daily, and absolute rest. Maintain paralyzed parts in normal position to prevent over-stretching of weakened muscles. Clean thoroughly the alimentary canal. Lumbar puncture should be made to reduce pressure on the cord.

Following the acute stage, electricity carefully applied may be of some value. Massage and muscle training offer more hope of benefit, however. Braces must be used to prevent deformity.

If deformity has resulted it must be corrected by the various surgical procedures. The author thinks tendon transplantations are useless on account of relapses to the former condition after a few years.

An Operation for the Relief of Wrist-Drop and Allied Conditions.—By J. G. Davis, M.D., and J. G. Finley, M.D., (*Surg. Gyn. and Obstet.*, Jan., 1912). The many various cases of wrist-drop are enumerated. A case is then presented having wrist-drop due to a bullet wound with division of the musculo-spinal nerve. Attempt to reunite the divided ends of the nerve seven months after the injury failed. After eight years the arm had become practically useless.

The authors devised an operation to fix the wrist joint, and the patient now has almost as good use of his injured arm as of the sound one. He can write, use a knife and fork, can carry a weight of 150 pounds, and is employed as a warehouseman, handling plumbers' supplies.

Through an incision posteriorly over the radico-corpal articulation of the radius, the basis of the third and fourth metocopal bones, and from the surfaces of the corpal bones articulating with these three. A bronze wire was passed through holes drilled in the radius the scaphoid the os magnum, the semilunar, the unciform and the third and fourth metacarpal bones. The hand was dressed in a splint position of dorsal extension. The wire was removed at the end of the seventh week.

The authors advise this operation for congenital flail-hands.

Infectious Diseases

Under the Charge of

ST. GEO. T. GRINNAN, M. D.

Chief of Clinic in Practice of Medicine, Medical College of Virginia; Visiting Pediatrist, Memorial Hospital, Richmond, Va.

Heredo-Syphilitics and their Detection.—Syphilis may be acquired directly, acquired congenitally or inherited. There is a marked distinction between inherited and congenital syphilis. Inherited syphilis is due to syphilitic influences affecting the ovum or spermatozoon before or at the moment of fertilization, while congenital syphilis is syphilis acquired within the mothers' womb, or at the time of birth before complete separation from the mother. (Arrand Ravold, *Illinois Medical Journal*, March, 1911). If the fathers have syphilis, but not in an active state, so called cured syphilis, his children will exhibit stigmata of syphilis. If the mothers have syphilis, not in the active stage, the children will exhibit syphilis more markedly than when the father alone is affected.

Children of such parents while exhibiting no active signs of the disease do exhibit certain stigmata, such as fetal cachexia, malnutrition, senile expression, malformation and other marks of imperfect development. As pointed out by Dr. Ravold these characteristics are presumably due to the action of the toxins of the spirochoeta pallida on the germ cells of the parent. A large number of observations have been made by various authors confirming these statements.

The heredo-syphilitic receives a two fold harmful heritage. Even among the better class where every possible care is available the brutally murderous effect on the offspring is appalling. Dr. Hochsinger's statistics show that 55 per cent of the offspring of syphilitic parents of the well-to-do classes treated by him die before the fourth year.

Syphilis causes in those who inherit it imbecility, idiocy, epilepsy, chorea, hydrocephalus, endarteritis, syphilitica, encephalitis, juvenile general paralysis, locomotor ataxia, deafness without otorrhœa, interstitial keratitis, fetal cachexia, malnutrition, senile expression, malformation, arrested development of the bony skeleton and teeth, precocity, and infantilism.

In the heredosyphilitics who reach maturity, it induces early arteriosclerosis, nephritis, apoplexy, paralysis, disorders of the liver and all kinds of degenerations.

Fauriner shows that the heredo-syphilitic is as a rule small in statue, often a dwarf. He asserts that there are four and possibly five pathognomonic signs of heredo-syphilis. (1) the Nate form cranium; (2) Hutcheson Teeth; (3) The sword-shaped tibia; (4) screw driver shaped incisions; (5) cuspidian erosion of the large primary molars.

With the Lueddle-Czapski microscope, the blood vessels of the cornea can be greatly magnified, the blood seen coursing through them. The vessels wall can be studied, whether thickened, crinkled, or aneurysmal. The study of the living blood vessel is a remarkable advance in our knowledge of such diseases.

The imperfect development of the scapula, giving the so called "scaphoid ocapula" is an anomaly of development caused by syphilis in many cases. Much has been written of the "scaphoid scapula," it is not, however, a constant degeneration. To syphilis is attributed the cause of the short lived family. He passes to his progeny a vicious heritage with constitution that usually reaches the age of 60.

Inherited Syphilis.—Lucius C. Pardee contributes an interesting article on this much discussed subject. (*Illinois Medical Journal*, May, 1911). Commenting on the fact that very many mothers of syphilitic children remain without visible evidence of syphilitic taint throughout their lives, and are seemingly immune to luetic infection, it would seem to put the burden on the male organism as the carrier of the infection. This author asks whether the placenta forms a barrier to the disease, or whether, if the disease is carried through the placenta, there is not an attenuated form which is unproductive of symptoms.

The view that mothers were not only immune, but were also free from luetic taint was held by the majority of observers as late as 1903, in which year Matzenauer read a paper in Vienna in which he took a view entirely opposed to the general accepted doctrine. He stated that it was his belief that there was no such thing as a direct paternal transmission of syphilis, that all inherited lues was through the mother and that the immunity of such mothers was due to the fact that they themselves had latent syphilis.

Matzenauer was able to back up his conclusions with some very cogent reasoning. His ideas were not accepted at the time. The discussion of his paper occupied six sessions of the Society before which it was presented. Although the arguments of Metzenauer were bitterly opposed, nevertheless his conceptions have becone more and more generally accepted. There are many points which await complete elucidation.

In 1908 Lucas, in an address before "The Society for the Study of Diseases of Children" in England, taking the same view as given by Matzaneuer, said: "To my mind inheritance from the father alone is now put entirely out of the court, and it follows that the infection of a mother by her fetus can never occur, for how is it possible that a spirochete whose length averages that of the diameter of a blood corpuscle can penetrate an ovum one-third hundredths of an inch in diameter and multiply without destroying it? I lay it down as an axiom, that inheritance is invariably from the syphilized mother. This is supported by Colles' law."

He says further; "It would seem that when virulent the spirochetes penetrate the chorium or placenta and occasion miscarriages, macerated fetuses or premature birth; but when the virus is attenuated by time or treatment, the placenta forms a complete protection to the developing fetus and it is the separation of the placenta at birth which allows infection to take place through the umbilical vein. Hence the regularity of the secondary exanthemata from a fortnight to three months after birth. In these cases the separation of the placenta is the first stage and corresponds to the chancre of acquired syphilis."

And again: "It is obvious that as the greater cannot be included in the less, a spirochete cannot be carried in a spermatozoon, but this does not exclude the possiblilty of its being conveyed by the fluid part of the semen."

Recently so-called dark bodies have been observed in syphilitic serum. These are supposed by some to be a quiescent state of treponeuea. If this is true they may play an important part in the so called paradoxical conditions.

Irrespective of the manner of transmission of syphilis to the unborn child, the fact remains that transmission does occur. If the mother is syphilitic it is certain that the child will be syphilitic. If the father is syphilitic, the child will very probably show signs of syphilis sooner or later. In any event this heritage occurs altogether too frequently.

When a child with inherited syphilis has passed the age of infancy there comes a period of quiescence and it is not until it nears puberty that attention is again called to the specter of disease which overshadows it. The stunted growth, poor mentality, poor physical conditions, and other defects stated as evidence of the disease. Puberty in both sexes is late and may never take place normally.

The concensus of opinion is that syphilis cannot be transferred beyond the second generation. Faurier has collected 116 cases, fifty nine of which he thought were to be relied on as showing transmission to the third generation.

Infant Feeding in Health and Disease

Under the Charge of

MAURICE OLIVER MAGID, M. D.

Adjunct Pediatrist Beth David Hospital, New York City; Assistant Visiting
Physician O. P. D. Pediatrics, Cornell University Medical College;
Formerly Physician in Charge of Infants' Milk Depot of
the New York Milk Committee, etc.; etc.

Simplified Infant Feeding.—Roger R. Dennett, New York. This is a statement by one who has used the varying "fads" in infant feeding of a more simple method that he had tried with good results. Realizing that a child will gain upon a mixture of whole milk and sugar proportionate to its weight, he has found that of a four per cent milk, an infant requires twice as many ounces as he weighs in pounds, and that for a baby over one month one and one half ounces of sugar is a fixed proper amount for the 24 hours. To this is added the amount of water to make the necessary number of feedings of the correct size, generally allowing one ounce more than the baby is months old to each feeding. This simple rule applies to all babies not in the following four classes: (1) Infants under one month; (2) Fat babies over eight months; (3) Atrophic or marasmic babies; (4) Babies with digestive disturbances.

In the first class, the writer advises one and one-half times as much milk in ounces as he weighs in pounds, with one ounce of sugar; for the second class, decrease the amount of milk or of sugar; for the third, increase the value of the food; and for the fourth, modifications to individual needs, of which he gives example.

The Treatment of Diarrheas in Bottle-Fed Infants.—Roger H. Dennett, New York, states that the excess of sugar in infant feeding causes diarrhea. If infants who have diarrhea are given plain boiled milk and water without sugar they at once recover. These are underfed, poorly-nourished babies, and a cathartic does them harm rather than good. If they do not improve on this diet they are given *eiweiss milch*, which consists of a fine aqueous suspension of casein. Infants that have had prolonged and repeated attacks of diarrhea do best on this preparation. Older, well nourished babies with diarrhea, who can stand a little starvation, do best on barley gruel for a few days. Infectious diarrhea, if seen early, should be treated by means of a cathartic and starvation for forty-eight hours or longer, and then by means of boiled milk and water or *eiweiss milch.* Cathartics for babies with diarrhea should be given with great disceretion.—*Medical Record*, December 2, 1911.

Inorganic Constituents of Foods in Nutrition of Infants and Children.—By Elias H. Bartley, Brooklyn, N. Y. The author claims that one reason why milk is such a necessary food after weaning, is because of the inorganic salts therein, and that these should not be regarded as accidental substances, but as important to the growing child as fat, protein or carbohydrates, as shown by grave nutritional disturbances when they are lacking or wrongly balanced. Grouping the ways in which these salts serve the body as; (1) giving permanence to skeleton; (2) being essential to cellular protoplasm; (3) regulating osmotic processes; and (4) regulating nervous and muscular tonus; he takes up in detail the work of various inorganic elements, and presents a synopsis of the foods where each may be found.

Milk in its Relation to Public Health.—Percival J. Eaton, M.D., of Pittsburgh, Pa., discussed the above subject at the general meeting, (*Medical Society*, of Pennsylvania, Harrisburg Session, Sept. 27, 1911). He said, through various educational endeavors the laity have come, in increasing numbers, to demand a quality of milk which shall be at once safe, palatable and hygienic. The profession in general have recognized that a milk ought to be not only free from dirt, bacteria, etc., but also chemically and physically fit for the uses to which they wish to put it, and further, that properly modified cows milk is the best of all substitutes for breast milk.

Both the profession and the producer, and to a less extent the consumer recognize the economic value of good milk as a life saver and as a wealth producer. Little by little it has been appreciated that raw milk is of much greater value than either sterilized or pasteurized milk, always provided, it has been produced and handled in a sanitary way—the belief that tuberculosis can be transferred from cattle to man is growing—and all the investigations to date seem to prove that contention. As a disease carrier, milk stands high on the list—many epidemics having been fully proven to have been caused by infected milk. The value of milk depots in the conservation of infant life has been abundantly proven, and the teaching which has been supplied with the good milk has been of great service.

The result of the endeavors of the many milk commissions has been to elevate the standards of the producers as regards the milk itself, its production and its care, and to have stimulated them to improve their herds; and finally, it has been the pleasure of all who teach, to beg for a more general recognition of the rights of the producer and to show that a good product deserves and should obtain a good price.

Pasteurization of Milk in the Bottle on a Commercial Scale.—Charles E. North, New York, states that pasteurization in the treatment of milk has not reached the perfection that has been reached in the preservation of beer, which is sterilized by hot water on a large scale with bottles permanently sealed. The commercial sterilization of milk is done by the flash process in which heat is applied for a very short time, or in large tanks, there being an opportunity afterward of receiving germs from the handling of milk while sealing the cans. The author has made experiments which show that milk can be pasteurized in the same manner that is used for beer on a large scale, with the bottles sealed before pasteurization. This will guarantee against reinfection of the milk until the bottle is opened by the consumer. If this method could be adopted by large milk dealers it would be a great advance in the feeding of infants and young children.—*Medical Record*, July 15, 1911.

PEDIATRICS

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EDITORIAL

THE SYMPTOMS, EFFECTS AND TREATMENT OF ADENOIDS.

Adenoids are lymphoid growths in the rhyno-pharynx of children, and are known as pharyngeal tonsils. They may remain permanent, and often extend into the pharynx.

A child with adenoids is either stupid or extra bright, but as a rule has a stupid expression of face and is dull and apathetic, semiconscious of his or her surroundings. He is fidgety and always in motion, either to his hands, feet, body, eyes or some set of muscles. And why? Because there is want of something and he knows not what it is. It is oxygen he wants. As a rule such children are considered bad in some ways because they are constantly being irritated by CO_2 in their systems, and if this poison were eliminated properly they might be excellent children and would appreciate good health more than a child that was never sick, and would appreciate the difference. The diseased child never has rest; he has to do something, but of course he never thinks of removing the real cause. If you give such a child rest you will not have to bother about his happiness as it is sure to follow. But such a child never rests. They get up in the morning tired as if they had been doing manual labor, and they have been working all night trying to get enough oxygen and eliminate CO_2 and the poison that has been taken in from this diseased adenoid tissue. The inspired air not being moistened and warmed, the respiratory organs suffer. As he is a mouth breather the physiological channel for air and secretions of the frontal sinuses, ethmoidal cells, sphenoidal sinus, and maxillary sinuses are all obstructed and drainage from the eye is blocked. The secretions are drained into the nasal cavities and there become putrid, as nature's best antiseptic, "fresh air," cannot get there. Then this poison is taken back into the circulation through the mucous membrane of the diseased turbinates, and the erectility of the tissue of a diseased turbinate is very great. Then trouble begins in the connecting sinuses and cells.

The superior maxilla becomes malshaped, and when the inferior maxilla does not fit the superior it looks as if it were malshaped. The teeth of the upper jaw are as a rule crowded or overlapped, because when the child is asleep and mouth open there is scarcely any current of air through the nares. When the child breaths in 14,000 and breathes out 14,000 times — 28,000 acts of breathing each night, so many times is the current of air thrown against the roof of the mouth (which is 28,000 taps against the superior maxilla every night) that this causes overlapping of the teeth of the upper jaw.

This adenoid tissue often extends into the pharynx, and there these masses often press against the opening of the Eustachian tubes. When they are closed the air in the middle ear is absorbed and drum membrane is pressed in by external atmospheric pressure. If left in this condition the bones of the ear become anchylosed. The membrane over the foramen rotundum loses its elasticity and becomes thickened, and if that be the case we have impairment of hearing, as the foot plate of the stapes cannot be pressed into the fenestra ovale unless there is some part of the wall that is elastic, and the membrane over the fenestra rotunda is only the part of the wall that is elastic. Hence when this membrane loses its elasticity and becomes thickened the vibration of the foot plate of stapes is very limited. Then we have impairment of hearing.

When the Eustachian tubes are healthy they are opened at each act of deglutition and air is forced into middle ear; but such is not the case if a mass of this diseased tissue is in the opening of tube or passes against the pillars of the same. A foreign substance will remain doubly as long in the anterior nares as it will in the posterior nares without becoming putrid. Hence this rhino-pharynx should not be kept open, especially as a current of fresh air is nature's deodorizer and disinfectant, and will do more good in overcoming the effects of adenoids than any medicine one can be used in the nose. Thus a free current of air through nasal cavities is very important. It keeps the parts clean, and "cleanliness is next to Godliness." A diseased child is seldom good.

"Nightmare" is a symptom. When a child wakes up in the night screaming and crying, or wanders off quietly, or walks in some dangerous place—that child is not awake; only the lower centers are awake. The higher centers are poisoned from want of proper nourishment in the brain, and are dormant, while the lower centers are being irritated by this poison from the blood. Why are these poor creatures allowed to suffer and go through life handicapped?

1st. Because the child does not know what to complain of, and, if asked, would say he is not sick.

2nd. Because the parents, grandparents, etc., were not treated for this trouble and went through life with a nose that was worse than useless.

3rd. The family physician rarely thinks of looking in the rhino-pharynx for the trouble. Even when called in, he simply prescribes a nose wash and goes on with a clear conscience, thinking the child has a cold in the head.

INFANT MORTALITY AND SEWAGE POLLUTED WATER

Of all the diseases to which infants are especially prone, none is so common or so fatal as "diarrhea and enteritis." The diarrhea of infants is attributed to more than one cause, although the food and the weather are regarded as mainly responsible for the prevalence of the conditions. In crowded cities and in tenements in which people are herded together, when the weather is hot and flies swarm then diarrhea is most in evidence among the infantile population.

There are, however, other causes of diarrhea and enteritis in infants to which attention has not been so closely directed. The chief of these is a polluted water supply. According to Allan McLaughlin, Passed Assistant Surgeon, Public Health and Marine Hospital Service, who writes in Public Health Reports, April 26, 1912, on the subject, polluted water may be the main cause of diarrhea and enteritis in children. He points to the very significant fact that the prevalence of this condition in children in certain cities and towns is coincident with a polluted water supply. It is also apparent that there is generally a parallel between the curves for typhoid fever and enteritis in the winter months suggesting that water is a factor in the prevalence of both. That is to say, in the time of the year when hot weather and flies are absent children suffer largely from enteritis. On consideration it is reasonable to suppose that a polluted water supply would have a profound effect on the health of infants. When infants are artificially fed, as is so frequently the case nowadays with the babies of working mothers, the food on which they are nourished for the most part is cow's milk. This milk is diluted with water for infants' consumption and if the water contains disease germs or is contaminated in any way, what is more certain than that intestinal infections will be set up.

The effect of polluted water upon young children may be direct or indirect. It may be used to dilute milk, to wash milk bottles, or directly as a beverage. Further, such a water supply, which originates typhoid cases in cities and towns is responsible indirectly for the contact infections in children resulting from such cases. In this connection occurs a very important point and one to which notice has been drawn editorially on more than one occasion in *Pediatrics* that typhoid fever is not nearly so rare in young children as is generally supposed. There is likewise another point of great moment, that the paratyphoid infections, concerning the differential diagnosis of which there is wide divergence of opinion, are probably more frequent by far in infants than they are now known to be. McLaughlin wisely advocates the cooperation between practicing physicians and local health officers with this end in view. (1) Investigation of deaths in the group classified as diarrhea and enteritis; (2) A wide use of municipal laboratories especially in the diagnosis of typhoid fever and dysentery.

Investigations on these lines and also with the object of differentiating between the infections now known as the paratyphoid infections should result in the acquirement of knowledge regarding these diseases of universal value. The practical application of such knowledge should tend to check the holocaust of infants which is now the shame of so many cities of the civilized world.

THE INFLUENCE OF THE SCIENCE OF EUGENICS AND EUTHENICS UPON RACE CULTURE

An editorial writer in the April, 1912, issue of Hygiene and the Child ably discusses the subject of Eugenics and Euthenics. The subject is one that we have referred to editorially a number of times during the past few months and with proper acknowlegement we give our readers a few excerpts, from this article.

Why should we not have certified, pedigree babies? We have colts and pups and calves with certified pedigrees, that are guaranteed to produce all the good points of their ancestors.

Does not every father and mother hope that their children are going to inherit all their physical and moral virtues, and escape their blemishes? But what assurance have they that the child will have even the physical stamina to live past his second year?

Oliver Wendell Holmes has wittily said that the first essential in healthy stock is to choose healthy grand-parents. Our young people are proud to marry into wealthy and distinguished families, and this is well, for such families usually imply ancestors with powerful traits of character; but how many today can pick out the qualities in their companions that show that they have descended from grand-parents who are mentally, morally and physically strong. The keynote of the nation's progress today is Eugenics and Euthenics. President Taft, before the Tuberculosis Congress at Albany N. Y., said: "The agricultural department is spending fourteen or fifteen million dollars to tell the farmers how they ought to treat the soil and how they ought to treat their cattle and horses with a view of having good hogs and good cattle and good horses. Now, there is nothing in the Constitution especially about hogs or cattle or horses, and if, out of the public treasury at Washington there can be established a department for that purpose, it does not seem to be a long step or a stretch of logic to say that we have the power to spend the money in a bureau of researches to tell how we can develop good men and good women."

There is some sense in this. When we realize that the Government spent, in the year, $176,000,000 to prevent and protect the country against war and only $15,000,000 to prevent the people against preventable disease, we can see why more people die of preventable disease than in war.

New York State alone spent $568,000 to preserve the fish and game of the State and $170,000 for health.

Dr. Davenport says, the human babies born each year constitute the world's most valuable crop. Here and there, by chance, well-mated parents produce a wonderful child who has sufficiently strong stock and good care to weather the diseases of childhood, and we have a Fulton, a Lincoln, an Edison to lead the nation slowly forward; but with what bounds could we advance if we could be as certain of raising everywhere as good, strong stock in the nurseries of our nations as we do in the ranches of careful cattle breeders.

About two and a half million babies are born in the United States each year. Nearly half a million die in their first year, and half of all are dead before they reach their twenty-third year, before they have had a chance to do either much good or evil in the world. Of the one and a quarter millions who live, a certain proportion will become industrious citizens of average ability, and the smaller proportions will be the leaders of men the doers of deeds, while there will be a very definite proportion that will, by reason of their heredity, become criminals, epileptics, paupers, alcholics.

The other more healthy and able people of the United States have to support these incapable ones. There are about half a million insane and epileptic, feeble minded, blind and deaf; there are 80,000 prisoners and 100,000 paupers—all of whom cost the United States over a hundred million dollars a year.

When young people marry in cities, especially in America, there may be almost no knowledge of the other's ancestry, even of their immediate family. But the young man or woman of to-day has the right to know the ancestry of both his or her child's parents. Each has a right to exact a health standard as well as a moral one. It would be a great help if family genealogies were kept, showing what each individual died of and from what diseases he had suffered.

Arnold White says: "Much of the best work of the world is done by the irritable, sanguine, nervy, resolute people, with great engine-driving power, not by those men and women whose machinery is perfect and whose souls float in a perfect frame."

But, broadly speaking, just as a few people still retain the hairy skin and the long coccyx of their primitive ancestors so a few people still retain the animal expression of sex, of cruelty and mental stupidity which are all right in apes but not in man. If men showing these traits can be kept from reproducing, and if by sentiment and science we can inspire young people to look for strong physical and mental qualities in their mates, we should in a few generations have entered a golden age.

The Baby's Clothes.—The typical clothing for the baby is soft and loose, giving plenty of room for development, no enveloping draperies to hamper or inpede motion. The day of the yard and a half dresses is past, and even the most elaborate clothes are made quite short. The simpler and plainer the clothes the better the baby likes it; fewer garments also take less time to dress and undress the small person.

The child should have woolen clothes, particularly next to the skin, therefore underclothes of wool or silk and wool are advocated for both winter and summer babies, the latter requiring a lighter weight garment. The chest, feet and abdomen must be warmly clad; the latter should also be supported. The little shirt should have high neck and long sleeves and button all the way down the front. The abdomenal binder should at first be a strip of flannel about 7 x 30 inches, which is snugly put on, although it should not be tight. As the child grows a woven binder of silk and wool with straps over the shoulders is substituted. The stockings should be long, covering the knee, and pinned to the diaper, which in turn is pinned to the binder. Over these is worn a flannel, sleeveless petticoat, buttoning on the shoulders, called a "Gertrude," and over this is worn a white slip or dress. A shawl completes the infant's toilet. The head is very sensitive to the cold in a new-born baby, so it should be protected, although this covering is gradually withdrawn as the baby grows older.—*American Motherhood.*

PEDIATRICS

ORIGINAL ARTICLES

ACUTE ENTERCOLITIS IN CHILDREN.

BY

HENRY ENOS TULEY, M.D.

Late Professor of Obstetrics, University of Louisville, Medical Department; Visiting
Physician, Masonic Widow's and Orphan's Home; Secretary of the
Mississippi Valley Medical Association; Ex-Secretary
and Ex-Chairman of the Section on Diseases
of Children, American Medical
Association, etc.

Louisville, Ky.

In this condition there are more or less severe changes occurring in the intestinal mucous membrane, usually without involvement of the stomach.

Etiology. This trouble is rarely primary, following, as a rule, upon some one of the acute forms of gastric or gastro-intestinal disorders.

The Shiga bacillus is very often found, also the colon bacillus and streptococcus. Age plays an important part in the etiology. It is most frequent during the second year, or the much-dreaded "second summer," not because the teeth are being cut at this time, but because the child is allowed to eat a too liberal diet during this period and acute gastro-intestinal troubles follow. It may complicate the acute exanthemata or pneumonia. Bottle fed babies are prone to develop this condition.

Pathology. As implied by the name given this trouble, the process is limited largely to the colon and the lower portion of the ileum, in a small percentage only the colon may be affected. The stomach may show signs of catarrhal inflammation but as a rule is normal. Three grades are usually described: the mild, or acute catarrhal, ulcerative, and pseudo-membranous.

1. Catarrhal. One is impressed with a condition seen in autopsy work in fatal cases of catarrhal enterocolitis, viz., the comparatively slight changes seen macroscopically in the intestines. The stomach and upper part of the small intestine will show changes varying from a very slight congestion here

and there with small amounts of mucus loose in the bowel, or bathing the surface of the mucous membrane, to a deeply congested area at frequent intervals. The deeply-congested areas are found at or near the cecum. Pyer's patches are swollen and the general surface of the mucous membrane appears granular. On section the mucous membrane shows a loss of superficial epithelium in some places perhaps approaching the ulcerative stage. There is a general round-cell infiltration of the mucous membrane causing thickening and some swelling of the lymph nodes.

2. Ulcerative. In this form there may be a follicular ulceration, being limited to the solitary follicles or a coalescence of a number of these forming a large ulcerated area. The ulceration may also involve a large area and be of a catarrhal variety entirely, and quite superficial. Ulcers are rarely found above the lower 12 or 15 inches of the ileum, and are chiefly located in the colon. In those areas where the follicles have coalesced the destructive process is deep, penetrating to the muscular coat, but in the milder form it is superficial. The mucous membrane has a pitted appearance.

3. Pseudo-membranous. In this form also the process is chiefly located in the lower ileum and most of the colon. There is a general thickening of the intestinal wall, due to round-cell infiltration, congestion and attachment of the pseudo-membrane. The whole surface of the colon may be covered with membrane or only a portion of it, with deeply-congested areas here and there, from which the membrane has become detached. The process is rarely found in patches, but it may be limited to the extreme lower end of the colon and the rectum.

The pathological changes found elsewhere depend entirely upon the complications existing during the attack. It is not an unusual thing to have a patchy broncho-pneumonia, especially in the prolonged cases, and in those who are reduced in vitality, the athreptic, marasmic child being much more liable to develop such complications. Nephritis may very rarely occur as a complication.

Symptoms. Clinically, it is often very difficult to differentiate the three varieties of this condition described under pathological changes. I have seen cases with a large number of mucous, bloody stools, with other symptoms indicating a severe ulcerative type, in which the autopsy findings did not reveal any ulcerations of the type expected.

If primary, an enterocolitis usually begins suddenly, with vomiting, a rise of temperature varying from 102° to 104° F., with proportionate increase in pulse rate, and the child appears sick from the onset

The vomiting as a rule is not severe or often repeated, and is soon followed by abnormal evacuations. The first part of the first stool may be normal, the last loose, perhaps containing undigested food and mucus. The character of the movements rapidly change, they are frequent, perhaps averaging once an hour; thin, contain much mucus, and vary in color from a very dark yellow to many shades of green. Some of the stools may consist simply of glary mucus. They may or may not in the severe cases contain blood varying from a few streaks in the mucus to a larger quantity. The stools will change in color, after being passed, and when napkin is examined the hour it was soiled should be known. After standing they frequently become very green in color, turning from a light brown to a very much lighter shade of green. Frequently there is tenesmus with each stool, the rectal mucous membrane may protrude as the child strains. The mother will often state that water or nourishment of any kind "passes directly through," meaning that the ingestion of anything causes peristalsis and a movement results. If there is much toxemia and high temperature the child will probably lie in a stupor; with a lower temperature it is apt to be fretful and restless.

It is not infrequent that they have muscular twitchings or general convulsions.

The high range of temperature is usually of short duration, there being an elevation of 2° or 3° F. during the rest of the acute stage. As a result of the toxemia, frequent loose actions, long febrile course and restricted diet, there is rapid wasting, the eyes become sunken, the skin is wrinkled and the fontanelle sunken, the picture presented being anything but a promising one. Thirst is apt to be a promising symptom.

Duration. The duration of the severe form of enterocolitis is usually comparatively short, the child growing rapidly worse from the onset, terminating fatally within a week or ten days, or the acute symptoms subside and the convalescence is prolonged for several weeks, or an improvement follows promptly from the acute symptoms and the child succumbs to a complicating broncho-pneumonia.

Cases may terminate fatally in three or four days, in spite of diet and treatment.

Milder cases are more often seen, but the general symptomatology is the same, a less abrupt onset, not so frequent vomiting, fewer stools, but they have the same general characteristics, nervous symptoms less marked, and convulsions unusual, and the general duration is shorter. The acute symptoms usually end in about a week, and the convalescence while slow is steady. Indiscretions in diet result in very frequent relapses and a chronic enterocolitis is the natural sequence. This especially is true when milk feedings are resumed too quickly and in prescriptions too rich in both fat and proteids.

Prognosis. Several factors materially influence the prognosis. The younger the child the more grave the prognosis; severe attacks under six months are usually fatal.

Artificially-fed infants bear an attack poorly; in the athreptic and poorly-nourished the results are poor; cases in which a digestive disturbance has been neglected always do badly, hence the prognosis is decidedly better when treatment is begun promptly.

Treatment. As just stated, on the promptness with which treatment is instituted in these cases depends in a great measure the results. The treatment can be considered under four heads; 1, preventive treatment; 2, general and dietetic treatment; 3, medicinal, and 4, hygienic treatment.

1. Preventive. Neglect of apparently trivial attacks of gastro-enteric disturbances, continuance of the unusual diet in the presence of what is generally considered a trivial attack of vomiting and diarrhea, is responsible for more of these cases than any other cause, and undoubtedly increases the mortality greatly.

Mothers should be educated in the first place in the importance of pure milk supply in the artificially fed, the value of absolute cleanliness in the care and preparation of the child's diet; the necessity of the immediate withdrawal of all food upon the first appearance of vomiting or an abnormal stool and early medical treatment. If these requirements were met in all cases, the frequency of the severe cases and the mortality would be greatly reduced.

2. General and Dietetic. If the vomiting is recurrent the

stomach should be washed, using warm, filtered and boiled water. If on a general diet or modified or whole milk, all food must be withdrawn at once, and not resumed until both the stomach and the intestines have had a rest, and then resumed very gradually. The first food given should be a dextrinized plain barley water or combined with any of the animal broths, in equal parts, or a small quantity of panopepton or liquid peptonoids. The latter are of value chiefly because of their alcohol content, having relatively small food values. Milk can be resumed after the subsidence of the symptoms of the use of whey, made from fat-free milk, combined with barley water or a diluted fat-free buttermilk made with a pure culture of lactic acid bacteria. Beef juice has a tendency to increase the diarrhea, often causing watery movements. The food must be changed from time to time also, as the child is apt to become tired of one or two of the combinations mentioned. If it refuses the food entirely, it must be given by gavage. Do not resume milk feeding too suddenly; add one to two drachms of skim milk to a barley-water feeding once during the day; if this is taken care of give the same quantity twice the next day, the next give two teaspoonfuls, and so on, gradually increasing the milk.

A valuable agent, but a much-abused one in these cases, is colon irrigation. It should not be used oftener than twice in the 24 hours, once being usually sufficient; a soft Nelaton catheter, well anointed, should be used, and if there is much straining and a tendency for the bowel to expel the tube, the irrigating bag should be held but a small distance above the buttocks. If there is much mucus of the white, glary kind, the irrigation can be of an astringent solution to advantage, a heaping tablespoonful of tannic acid, dissolved in a quart of water. For an ordinary irrigation use the normal salt solution, using not less than two quarts at one irrigation. The temperature can be as low as 85° F., in febrile cases, or 95° to 98° F. where the temperature is not so high. Tub baths are given for cleansing purposes as a routine but should be repeated as an antipyretic measure. Medicinal antipyretics should never be used.

3. Medicinal. Shotgun diarrheal prescriptions should never be given. Only such drugs should be used as there is a special indication for. As soon as the first symptoms appear a purgative must be given, castor oil, if the stomach is in condition to retain it, otherwise calomel, in one grain dose to a child of one

year or over. One of the most useful is bismuth and a pure subnitrate preparation is advised. The usual dose given by the average practitioner is much too small. It should be given in not less than ten grain doses at least until 60 to 80 grains have been taken in 24 hours. It is a valuable agent, acting mechanically on the congested and inflamed mucous membrane. An astringent can be added if the movements are very frequent and contain much mucus. Tannalbin or tanningen in three to five grain doses can be added to the bismuth for their astringent effect. If there is much odor to the evacuations salol will be found of service, given in two to four grain doses every four hours.

Stimulation may be needed, but should be reserved for active indications.

Opium is of service in these cases with many frequent movements and a great deal of tenesmus. Dovers powder, in one-quarter to one-half grain doses, is a valuable remedy. Opium in any form should not be combined with a prescription but ordered separately and given at the same time if need be. This is important, as the opium is usually the first remedy to be discontinued. Kerley has recommended the addition of one grain of sulphur to the bismuth preparation, if the movements do not turn black after its administration for a few days. For the tenesmus, three or four drops of the deodorized tincture of opium can be given in two or three drachms of starch water as an enema, following an irrigation, if the Dovers powder is effective.

The after-care of the patients is most important. Medication in convalescence is not specially indicated, as they usually respond quickly to proper diet as soon as it is safe to resume it.

4. Hygienic. In no class of cases does a complete climatic change have so beneficial an action as in children convalescing from enterocolitis. From points south of Mason's and Dixon's line no other change is more beneficial than removal to points in Michigan. The large amount of water through this State imparts a life-giving something to the air which works wonders in these cases. They unquestionably get back upon a gaining diet much quicker in this climate than at home. Some cases do well when simply moved from city to the country near by—others do better in the mountains or at the sea shore.

Great care should be exercised in keeping the soiled napkins clean. They should be boiled daily. In institutions the napkins from the well should be treated separately from the infected ones. These cases should be isolated in hospitals and institutions, and not too many kept in a ward or room. Their feeding utensils should be kept apart from the general supply and frequently boiled.

If in institutions, but few should be put in the same ward, allowing plenty of air space to each infant.

DISORDERS OF CHILDHOOD ATTRIBUTED TO "TEETHING."

BY

LEONARD GUTHRIE, M.D., F.R.C.P.

Senior Physician to Paddington Green Children's Hospital; Physician to the Hospital for Epilepsy and Paralysis, Maida, Vale.

London, Eng.

A hundred years ago, the great majority of all ailments to which infants are liable were attributed to the effects of dentition. The mortality from this cause alone was placed as high as 50 per cent. About 50 years later, however, it was announced as a discovery that, after all, dentition was but a physiological process, and as such it could not very well be fatal, or even dangerous to life. This produced a reaction, and although infants continued to suffer and to die, as still they do, of convulsions, meningitis, pneumonia, pulmonary, gastric, and intestinal catarrh, during the period of first dentition, these illnesses were no longer attributed to "breeding of the teeth." Dentition rarely finds a place in death certificates now.

Yet the public—whose information on medical matters is usually a century behind the times—still persist in regarding all complaints in early infancy as due to teething. "Is it his teeth, or is it comsumption of the bowls?"

"He always cuts his teeth with convulsions or bronchitis," as the case may be; "I thought it was only a teething rash" —are all common questions and statements of which many of us must have grown weary, much as the Athenian tired of hearing Aristides called "The Just." Possibly, therefore, we may pay less attention to the phenomena of dentition than the subject merits.

Truth and fallacy, like poisons and their antidotes, often grow side by side. Dentition is a physiological process and as such is often accomplished without any disturbance to the infant's health. On the other hand, it is futile to deny that it is often associated with considerable pain, constitutional disturbance, and local signs of inflammation in the gums.

In inquiring why this should be, we are handicapped, at starting, by want of knowledge as to the exact method by which the eruption of teeth is effected.

Does the process resemble that which obtains in sharks, whose mucous membrane, to which the teeth are attached, and of which they are a part, is shed in layers, thus bringing successive rows of teeth to the surface?

At all events, the shedding of the temporary teeth in human beings seems analogous.

Do teeth arrive at the surface through successive additions to the length of the fangs? Against this view it has been urged that occasionally unerupted teeth are found with perfectly developed fangs. Yet this condition may be but an exception to the rule.

We may safely say that the old view that teeth literally pierce the gums—as a blunt awl might be driven through a cowhide trunk—and that all troubles, which may accompany teething, are due to resistance afforded to a tooth by a tough, unyielding gum, is erroneous.

No gum, even if as tough as a turtle's, could withstand the passage of a tooth.

The superstrata of the gum over a tooth are gradually absorbed or atrophied, not pierced. The process has been attributed to the action of phagocytes, but on what evidence I do not know.

The idea that teeth may be "liberated" or their eruption hastened, by lancing the gums must be discarded.

We must, however, leave undecided the exact nature of the forces which are concerned in dentition. We know no more about them than we do of those which determine physiological processes elsewhere, such as the development of function in the salivary glands, the intestinal glands and the nervous system.

What is the immediate cause of painful dentition? Some have held that a tooth acts like a foreign body, and causes pain by forcing its way through its closely packed neighbors in a small and over-crowded jaw. I am not prepared to deny this altogether, for it is well known that an impacted wisdom tooth may give rise to much distress in after life. Yet I think an analogous condition in primary dentition must be rare, because as a rule the infant's pain arises when the tooth has out-soared its neighbors, and is nearing the surface of the gum.

I doubt again whether pain is produced by resistance to the passage of a tooth by the gum above, unless indeed the gum be inflamed, for surely the resistance offered to the permanent teeth by the deciduous teeth above them, must be far greater than any which the gum itself can afford. Yet eruption of permanent teeth is painless, unless the temporary teeth are carious or the gum inflamed.

The inference, therefore, is that dentition is painful when the gums are so.

Symptoms of painful dentition. The normal healthy child may have none save salivation, and the satisfaction which he derives from biting and munching anything which he can put in his mouth.

If fretful, it is because he is not supplied with something to bite. A hard crust at once brings contentment. Mastication may accelerate the process of dentition, and Hippocrates was probably right in assuming that in these circumstances the gums itch. They are not, however, red or swollen, tender or dry. Pyrexia is absent.

The condition of a child in whom dentition may be really painful, is wholly different from the above. Here the gums are swollen, tender and reddened. They are dry, or covered with thick and slimy mucus. Salivation seems suppressed. Frequently this condition of gingivitis affects the gums as a whole. Less frequently it is most marked over the site of an erupting tooth. One cannot doubt that, under these conditions, dentition may be painful. The child is restless, sleepless, or wakes at short intervals, screaming with rage and pain, and driving its parents to distraction. It ejects its "comforter," and the nipple of the breast, or bottle, with an angry cry. Evidently, pain and tenderness of the gums are increased by pressure. Often he pulls and rubs his ears, or the back of his head, showing that his sufferings are referred to these parts.

The temperature is often alarming, rising to 104° or 105°. With pyrexia there are, I believe, almost invariably signs of gastro-intestinal disturbance, such as vomiting, with diarrhea, and loose, offensive, green and curd-containing motions, and griping colic. Sometimes there is obstinate constipation. Signs of pharyngeal, laryngeal, tracheal and bronchial catarrh are common enough. Nervous symptoms such as laryngismus, spasmodic coughs, squints, muscular twitchings, tetany, or convulsions may occur, but it is worthy to notice that these are far more prominent in edentulous, rickety subjects than in those who are cutting teeth.

The popular superstition that rickety children, who suffer from any or all of these symptoms, "cut their teeth in their loins" was no doubt invented by some medical man in by-gone ages, in order to account for the fact that the teeth, which he has confidently predicted, failed to make an appearance in their normal site.

Convulsions are far more common in infants before than during the teething age.

All the symptoms which have been mentioned, and many others, including so-called "teething rashes," which comprise every variety of dermatitis and exanthem; meningitis of every sort and kind; encephalitis, infantile paralysis, hemiplegia, paraplegia, diplegia, eye affections, such as keratitis, iritis, and optic neuritis; ear affections, such as otitis media and mastoiditis, pulmonary diseases of every kind have been attributed to teething. In short, there is no disease for which dentition has not been held to account. Of pulmonary disease, perhaps lobar pneumonia, and particularly apica pneumonia, has most frequently been mistaken for teething, the reason being that until within recent years its existence was denied in infants under two. Yet of all complaints in infancy, lobar pneumonia yields most striking indications of its presence.

When, however, pneumonic delirium has been mistaken for meningitis, and a crisis has happened with the eruption of a tooth, or has followed lancing of the gum, no doubt the happy event has been held to justify both diagnosis and treatment. One can only thus account for the strange conviction, dear to our parents and their medical advisers, that infants' lives are saved by the timely use of lancets.

It would be strange indeed if teething did not often coexist with every illness in infants aged from eight months to twenty-four. Yet I am convinced that, in the vast majority of cases, teething is a mere coincidence. It is chiefly of importance when it occurs through inflamed gums.

One sees countless cases in which teeth are cut in the course of any kind of illness, but without influencing its duration, and without evidence of alveolar inflammation. On the other hand, it is equally certain that alveolar inflammation and therefore painful dentition, are associated with every kind of illness, and with gastro-intestinal disturbance in particular.

This fact is admitted even by those who are not disposed to regard dentition as a source of all evils, and the following explanations have been offered of coincident disorders:

(1) The Reflex Theory; (2) The Pyrexial Theory; (3) Idiosyncrasy and General Nervous Instability.

The reflex theory is fascinating in its simplicity and plausibility. The trigeminal nerve, which supplies the jaws and teeth, has extremely wide anatomical connections, as everyone is aware. It would be tedious to enumerate them. One need only allude to its communication with the facial, glosso-phayngeal, and vagal nerves; with the sympathetic supplying the iris at the gasserian ganglion; with the nerve to the membrana tympani through the otic ganglion.

Moreover, the nerve is not far from its origin in the medulla, where its nucleus is in close proximity to other important nuclei, and also to the base of the brain. Such being the case, it seems natural to attribute all complaints of parts, however remote, to reflected irritation of the fifth nerve.

There may be a certain amount of truth in this, but it is not the whole truth. No doubt irritation of the dental branches of the fifth may produce otalgia, but it cannot produce suppurative otitis media. In rare cases, it may give rise to convulsions, but it cannot cause meningitis.

Spasmodic asthma, were the theory true, should be excessively common in teething infants, but it is of the utmost rarity. Pneumonia cannot be brought about by reflex irritation of the vagus; whilst, as before mentioned, laryngismus and tetany, complaints which might well be produced by reflex irritation, are practically confined to rickety children in whom dentition is delayed.

One may admit at once that pain in any part may be transferred elsewhere, yet disease is not set up in the remote part to which the pain may be referred. Pain, in early hip disease, is commonly referred to the knee, in renal colic, it may be felt in the testicle; yet neither knee nor testicle is actually diseased. John Hunter's usual astuteness forsook him when he attributed relapsing urethritis, exactly resembling gonorrhea, to the effects of teething.

The reflex theory will not wholly account for all the complaints which exist with painful dentition.

The pyrexial theory, again is not entirely satisfactory. It is held that dentition produces high temperature, the pyrexia predisposes the patient to chill, and that chill results in catarrh and inflammation of the pulmonary or alimentary system. Here again the explanation is not quite acceptable. Why should dentition be associated with pyrexia? It certainly is not so unless painful, and why is it painful unless the gums are unhealthy and tender? Modern experiments seem to show that chill is not the potent cause of catarrhs and inflammation, which it was formerly held to be. They are due to microbic invasions, and not to exposure to cold alone. At the same time protection from chill is important. Restless, feverish infants who are supposed to be "merely teething," should not be taken out of their cots to look at the moon on frosty nights.

Lastly, we have the theory that children at the dentition period are in a condition of exceptional susceptibility to various complaints, because not only their teeth, by the glands of the alimentary tract, and their nervous system are undergoing physiological development.

Such physiological processes, without doubt, are proceeding, but it seems unjustifiable to blame nervous, or intestinal instability, when other and more obvious causes of illness may be found. I doubt if any healthy child suffers by reason of the "instability" of its nervous system, or the development of its physiological functions. If there is any special susceptibility at this age, in a healthy child, it is to the ill-effects of sour milk and improper food, which susceptibility need not be regarded as an idiosyncrasy. This I believe to be the crux of the whole matter.

In my personal experience I can hardly recall a case of painful dentition which has not been accompanied, and usually preceded, by gastro-intestinal disturbance, or by naso-pharyngeal, pulmonary or bronchial catarrh.

It is in connection with constipation or griping colic, diarrhea, with offensive, green, curd-containing stools, that we find dry, tender, swollen gums which, in my opinion, render the eruption of teeth painful. Over and over again, mothers have complained that, whereas a child has previously cut several teeth without discomfort, on this particular occasion a tooth is being cut with diarrhea, and all the familiar symptoms of feverish catarrh, fretfulness, insomnia, screaming, perhaps convulsions, and obvious pain in swollen, inflamed gums. In practically all such cases, improper diet or tainted milk is the cause, and the symptoms speedily subside under castor oil and careful dieting.

One is compelled to regard the oral conditions as part of the intestinal, rather than to consider the abdominal symptoms as due to reflex irritation from the gums.

In favor of such a view may be maintained the well-known fact, that in adults a raging toothache may often be relieved by a brisk purge. Sir Lauder Burton explains this by supposing that "the state of the nervous system is so altered by the purge that pain is no longer produced by the irritation."

Yet I venture to think that a more reasonable explanation is that the cause which irritates the intestines irritates a tender tooth, and that this cause is removed by the purge.

It must be a common experience that acute indigestion gives rise to tenderness of gums, toothache, and neuralgia. The mouth is part of the alimentary tract, and the teeth and gums are part of the mouth, and therefore share in the general disturbance caused by indigestion and irritant matter in the intestines.

I believe, therefore, that the ordinary phenomena of painful dentition are dependent on alimentary disturbance, associated with a "common cold," and that dentition is painful because the gums become unhealthy.

Assuming this to be true, it affords an explanation of many of the more serious complaints, which occur together with painful dentition.

If the oral mucous membrane is unhealthy, it must follow that it is unable to cope with the invasion of microbes, As previously mentioned, salivation seems suppressed during painful dentition, and healthy saliva has, no doubt, antiseptic properties. Hence we can easily see why infants, whose teething is painful, fall a ready prey to catarrhal inflammation of the ears or lungs, to pneumonia and meningitis. A sore mouth readily becomes septic. With regard to ordinary infantile convulsions attributed to teething, I am convinced that gastric or intestinal disturbance is far more frequently the cause than dental irritation. At the same time one may freely admit that in accordance with views already suppressed, an infant who is neurotic by nature and inheritance, and whose nervous system is unstable in a pathological sense, is exceptionally liable to convulsions, and to the various neuroses which in a normal child cannot be attributed simply to dentition.

Treatment.—If the foregoing conclusions be correct, the success of ordinary methods of treatment in cases of painful dentition is explained, and possibly some of the more remote affections may be prevented by attempts to render the mouth aseptic.

General preventive treatment consists in scrupulous attention to form the mode of preparation of diet. If the child's food is unwholesome, its alimentary tract will be unhealthy.

When sour milk in unclean bottles has set up diarrhea and colic, the best remedy is castor oil in emulsion with a little tincture of rhubarb.

℞.	Olei Ricini	m. x.
	Tinct. Rhei.	m. v.
	Glycerini.	m v.
	Tragacanth	gr. ½
	Ag. Menth. Pip. ad	ʒi.

To this may be added Tr. Opii, in doses of one or two minims, if pain is extreme. The prejudice against giving laudanum to infants is groundless. There is little danger in giving it even to these, provided that the dose be not too large, and that it be not repeated, until the drowsiness produced by it has passed off.

Salol may be added to the mixture, when the motions are peculiarly offensive, and bromide of potassium, when restlessness and sleeplessness are pronounced. Dovers powder in doses of half a grain to a grain, with one or two grains of hydrarg, cum creta, is an ancient and excellent remedy for catarrh of any kind in children at the teething age.

Oral hygiene is of the utmost importance in teething infants. That which entereth the mouth defileth, and a teething baby puts everything therein which is possible of insertion.

Hence a reasonable discretion should be used in the selection of articles supplied for the purpose.

Rubber rings, "comforters," dolls' heads and the china ornaments on the mantlepiece should be washed before sucked. There is danger in the oft-sucked toy.

Nurses, who possess a very Baalbec of ruined teeth should not indulge in preliminary suction of the bottle to make sure that the nipple draws, and that the milk is to the baby's liking.

Even "Walker-Gordon" milk should not be stored in the lavatory. The outside as well as the inside of a feeding bottle should be kept clean. Every baby should possess its own pocket handkerchief, and a badger-hair gum-brush.

When the gums are painful, tender and congested, they should be brushed with a solution of ten grains of chlorate of potash to the ounce of glycerine of borax.

Should ulceration be present, the addition of 20 to 30 grains of resorcin to the above, and of a few grains of chlorate of potash to the castor oil mixture, are most efficacious.

Finally, it should be remembered that a fretful, feverish infant is almost invariably overfed; thus its sufferings are aggravated, and convulsions may be induced by cholic not by teeth.

A low diet of cow's milk well diluted with barley water should be prescribed.

Earache from middle-ear catarrh is a common cause of symptoms (including convulsions) supposed to be those of dentition. Any infant, except a congenital idiot, will indicate the site of its pain, by pulling its ear and rolling its head when suffering from otalgia. If recognized early, blistering to the mastoid process, and hot dry applications to the external ear, will often relieve. A leech to the mastoid process of infants who are robust is effectual. Puncture of the membrane tympani, even when the membrane is not bulging, but is merely congested, is sometimes strikingly successful in cases of apparent basic meningitis associated with fits.

Gum Lancing.—In the *American Journal of Dental Science* it is said, p. 327, that: "Many lives of children are probably sacrificed yearly, because of the popular and professional prejudice against lancing." Such statements are pious opinions which lack confirmation.

Personally, I have grave doubts if painful dentition has ever been the direct cause of death, or that life has ever been saved by lancing the gums. Even the oft-quoted cases of fatal so-called "teething convulsions," are, in my experience, attributable primarily to gastro-intestinal disorder. It is difficult to believe that "threatened meningitis," whether tuberculous or otherwise, has ever been averted by use of the lancet, or that the crisis in pneumonia can be hastened, or diarrhea cured, by such procedure. At the same time, there can be no doubt that local pain may be relieved by blood-letting.

Simple sacrification of the gum is all that is needed. Such barbarous usage as the removal, between elliptical incisions, of a portion of gum over a tooth, supposed to be offending, is not to be commended. As well as being cruel, it is illogical; for if the condition of the gum were merely that of tension over a tooth, a simple incision should gape at once, and so relieve the symptoms.

Gum-lancing should not be practiced in the absence of local indications for its use, and merely in the blind hope of relieving "constitutional symptoms and distress not otherwise accounted for." If unaccounted for, further investigation is required, not stabs in the dark. At the present time, it is hardly likely that the purple hemorrhagic swellings of the gums, met with in infantile scurvy, should be mistaken for sings of disordered dentition, requiring local venesection. Yet there is ground for suspicion that in former days many a case of scurvy was so maltreated and ended fatally.

THE PREVENTION OF DEAFNESS AND THE INSTRUCTION OF THE DEAF CHILD.*

BY

G. HUDSON MAKUEN, M.D.

Philadelphia, Pa.

Blindness is a great calamity both to the young and old, but deafness is a far greater one, especially when it occurs in children. Good vision is a convenience in the intellectual development of the child, but good hearing is an absolute necessity.

Blindness affects but a single cortical center of the brain, namely that of vision, while deafness affects two cortical centers, that of hearing, directly, and indirectly that of speech; and of all the cortical centers these two are probably the most

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important. The sense of touch may be substituted for that of vision with comparatively little detriment to mental development and intellectual progress; but even the modern methods of teaching the deaf child have not succeeded in furnishing a satisfactory substitute for the sense of hearing, while in the untaught deaf child, the brain tissue which forms a basis for all intellectual progress actually suffers arrest of development to such an extent as to be demonstrable by means of the tape measure and scales.

The subject naturally divides itself into three parts, which I shall put in the form of questions. (1) To what extent may deafness be prevented? (2) How can it be prevented? and (3) What shall we do for the children who are irrevocably and irreclaimably deaf?

To What Extent May Deafness Be Prevented?

A great obstacle to the prevention of deafness is the almost fiendish insidiousness of the affection. It comes on without warning, and sometimes it becomes an established fact before the physician or even the patient is aware of it. This is particularly true of infantile deafness, a form which is especially serious because of its interference with the development of speech.

The careful seclusion of the organ of hearing within the petrous portion of the temporal bone, Nature's beneficent plan for protecting it from injury, renders the approach of diseased conditions much less obvious, and remedial measures for their relief much more difficult. However, notwithstanding all this, I am convinced that a considerable percentage of the deafness that has existed in the past and that will exist in the future might have been and may be prevented.

A very distinguished otologist, and one who has given much attention to this subject, has said that 50 per cent. of deafness in the school children of England is curable, and I am of the opinion that an equally large percentage of the deafness in school children generally is preventable.

How Can Deafness Be Prevented?

If I could give you a specific recipe for the prevention of deafness, I should be at once conferring upon you an unutterable blessing and rendering my own name immortal; but the fact is, there is no specific recipe for the prevention of deafness and there never will be until the human race, unlike all other things in nature has reached perfection.

Deafness is a symptom and not a disease, and just as long as the human organism is subject to disease, just so long will there be the symptoms or results of disease, of which deafness is a type.

There are two kinds of deafness to be considered in this connection, viz., that which is a part of the inheritance of the child, or congenital deafness, and that which is the result of disease later on, or acquired deafness. This is a more or less arbitrary division, for nearly all deafness is acquired either before or after birth and the child inherits merely a tendency to the acquisition of certain morbid conditions which result in deafness, and which may be of either prenatal or post-natal development.

Prevention of Congenital Deafness.

Congenital deafness, and to a great extent also acquired deafness may best be prevented by a more careful selection of parents for our children, or in other words, by a stricter application of the principles of eugenics to this condition. In view of the fact that about 50 per cent. of congenital deafness is the direct product of consanguineous and deaf mute marriages, is it not time that something in the way of legislation should be done about it, and are not we, members of the medical profession, the ones to take the lead in doing it?

The Prevention of Acquired Deafness.

Man is endowed by Nature with two or three times as much hearing as he actually needs, and therefore, a considerable portion of it may be unwittingly lost. Moreover, it is well known that hearing power once lost is not easily regained, and as someone has said, the best time to cure deafness is before it begins. Having these things in mind, some of us advocate a periodic examination of the ears after the manner of our practice in respect to the eyes, in order that we may detect and combat diseased conditions in their very incipiency.

Acquired deafness in the majority of instances is the direct result of diseases of the ear, and these diseases may be either primary or secondary. Primary diseases of the ear are those which originate in any portion of the ear, including the naso-pharynx, and secondary diseases of the ear are those which result from extraneous causes, such as the infectious fevers of childhood.

The prevention of primary diseases of the ear offers a wide field for the otologist. All children are born deaf as well as blind and their tympanic cavities are filled with "loose œdematous connective tissue," which must be absorbed before hearing power can be developed. This leads to a consideration of what is probably the most important, immediate and predisposing cause of acquired deafness, namely, an inadequate ventilation of the tympanic cavities. Upon this factor alone many other pathological conditions are based, and therefore, the causes which lead to it should be promptly and vigorously attacked.

Inadequate tympanic ventilation is the direct result of two physical conditions: (1) faulty respiration, and (2) faulty action of certain palatal muscles; and these two physical conditions are in turn the direct results of naso-pharyngeal obstructions. If I were asked to name the most important measure for the prevention of acquired deafness, I should unhesitatingly declare it to be the normalization of nasal respiration and the restoration of palatal efficiency by a careful correction of septal and other nasal deformities, and the careful removal of diseased adenoids and tonsils.

Another less frequent and secondary cause of acquired deafness is infection through the eustachian tube as a result of so-called naso-pharyngeal catarrh, a condition which is often dependent also upon faulty respiration together with its concomitant faulty drainage.

These local pathological conditions of the various parts of the ear, including the naso-pharynx, are the predisposing causes of ear disease and deafness, and their timely removal is an important measure for the prevention of the serious ear complications accompanying the infectious diseases of childhood.

It has been estimated that two-thirds of all ear diseases are the result of measles or scarlet fever, and as has been truly said, these are the preeminently preventable cases.

In these days of antitoxines and vaccines, it is not too much to hope for at least a diminution of the devastating infectious diseases of childhood, including cerebro-spinal meningitis; and in these days of advanced otology, the prevention of the ear complications of these diseases can be only a question of a fuller application of the remedial measures at our hands.

The day has passed when the ear symptoms accompanying the infectious diseases of childhood can possibly be overlooked or neglected by the conscientious practitioner of medicine. He must know the right thing to do and he must do it at the right time. The opportunity for the prevention of deafness in these complications generally comes but once, and when it comes promptitude of action must be our motto. The danger signal of course, is pain. Nine times out of ten, an earache calls for the knife rather than for anodine drops, which only mask the symptoms and mascerate the drums. Paracentesis is one of the most important operative measures for the prevention of deafness, and it has probably saved more ears than any other single procedure

The key to this whole situation is largely in the hands of the general practitioner of medicine, and he it is who more than any one else can, if he will, open the door to progress in this direction. Indifference on the part of the general practitioner and ignorance, or a general and perhaps natural prejudice against all operative measures on the part of parents are the greatest obstacles to progressive measures for the prevention of deafness, and it is our duty as general practitioners and as special practitioners of medicine to disseminate as widely as possible among our patients the truth with reference to these matters and thus to unite in a common effort to save the hearing of future generations of children.

Instruction of the Deaf Child.

I see that I have left to me just ten minutes to discuss the instruction of the deaf child, and in as much as it would take at least as many hours to do justice to the subject, I shall be able to deal with it only in a very general way. As has been well said, if the principles of negative and positive eugenics were strictly applied to congenital deafness, and if rational measures for the prevention of acquired deafness could be generally adopted, we should have fewer deaf children on our hands; but until this time has come, we shall have the problem of the instruction of the deaf child before us, and we must face it for humanity's sake as well as for civic and economic reasons.

The term deaf child as here used must include those children ranging all the way from the slightly deaf to the very deaf, or the so-called deaf mutes. Those whose deafness is so slight as to interfere but little with their school work can best be educated, of course, with hearing children; but for those who can with difficulty hear the teacher, special clases should be provided.

The so-called "semi-deaf" or those having a remnant of hearing but not enough to hear speech either subjectively or objectively, and the so-called "semi-mute" or those having acquired deafness after the acquisition of speech but whose speech is not sufficiently established to become a permanent possession in the absence of hearing, may well receive their instruction together, under specially trained teachers in the public schools, but under no circumstances should the semi-deaf and the semi-mute be classed with the slightly deaf on the one hand or with the so-called deaf mutes on the other.

Moreover, it should be borne in mind that the children to whom I have referred differ from other children only in respect to their lack of normal hearing power and their defective speech. It has not been shown positively that deafness in itself affects in any way the mentality of the child. In our provision for atypical children, therefore, which must come as a result of the medical inspection of schools now in vogue, it is not enough to classify them according to their particular grade in school, but it is desirable rather to classify them according to the physical and mental characteristics which happen to be the cause of their position. A deaf child and a feeble-minded child may be equally backward in school, but it is obviously unfair to both to have them placed in the same class. A deaf child, although he may also be dumb, soon learns to appreciate the fact that notwithstanding his physical disability, he is mentally on a par with normal children, and to associate him with feeble-minded children for educational purposes is, to say the least, dispiriting, and it tends to destroy his natural ambition for studious application.

Deaf children, therefore, should, be classified according to the degree of their deafness and also to some extent according to the character of their mentality. This classification is now adopted to some extent in our own country as well as in one or two of the smaller countries of Europe.

Instruction of the Very Deaf or Deaf Mute Child.

The very deaf child differs from the normal child only in respect to his deafness and consequent incapacity for the acquirement of speech without special assistance. In the untaught deaf mute child, we have a striking illustration of the fact that speech is man's most distinguishing characteristic. The deaf child more than any of the human species resembles the young of the lower animals. Possessing as he does by inheritance every potentiality for mental and physical development, he is nevertheless to all outward appearances just a little animal.

Taking these things into consideration, you will readily understand that the most important period of the deaf child's life is that from two to seven years, the period during which hearing children naturally and physiologically acquire some command of oral language. As Dr. Kerr Love has pointed out, the deaf child usually begins school at seven years in the intellectual condition of the child of two, and this is physically expressed by his relatively smaller head.

Home Instruction of the Very Deaf or Deaf Mute Child.

The very deaf or the deaf mute child has the same capacity for receiving instruction that other children have except for the fact that the hearing center of the brain is inoperative.

The home instruction of the deaf mute child should consist chiefly in an effort to make the visual and tactile centers of the brain take the place of the inoperative hearing center in the reception of oral language. The deaf child, therefore, should be talked to and talked at as much as possible and on every possible occasion. He should have more attention of this kind, and not less as is usual, on account of his deafness.

The instruction of the deaf child should begin at the earliest possible moment, and it may best be given by the intelligent mother or governess under the direction of the physician or specially trained teacher. The oral method should be employed and the natural sign language should be used only as an adjunct or as some one has said as a "crutch" to be laid aside as soon as possible. This method of instruction carefully and vigorously practised will bring the otherwise normal deaf child to the school age with a fairly good practical knowledge of lip-reading and with a fairly good working vocabulary of words.

School Instruction of the Very Deaf or Deaf Mute Child.

The school instruction of otherwise normal deaf mute children may well be conducted in special day school classes, thus avoiding the necessity of removing them from their home environment and from their association with hearing people. At this period of their instruction, a suitable classification is desirable, so that the methods employed may best meet individual needs.

At least three classifications of very deaf children should be made. In the first class should be placed the mentally gifted ones, by whom the oral language may be easily acquired; in the second class, the less gifted ones to whom a combination of the oral and sign language may be best suited, and in the third class, the defective ones, including the blind and the mentally deficient who may not be able to acquire speech at all. The first and second classes should be especially provided for in the public day schools, and the third class should have institutional treatment, followed perhaps by more or less permanent supervision.

I would postulate the needs of very deaf children as follows:

1. An earlier beginning of their instruction.
2. A closer association with hearing children.
3. A more scientific classification for educational purposes.
4. A more satisfactory adaptation of methods to the individual mental capacity of the child.
5. Home environment and day school instruction for all except the mentally deficient and blind, who should be placed in institutions and kept there perhaps during their life time.

WHAT ADENOIDS REALLY MEAN TO CHILDREN.

BY

MACLEOD YEARSLEY, F.R.C.S.*

Senior Surgeon to the Royal Ear Hospital; Consulting Aural Surgeon to the Royal School for the Deaf and Dumb, Margate; Medical Inspector to the London County Council Deaf Schools, etc.

A long experience of deafness and diseases of the ear in children and, more recently, of work amongst school children, normal and defective from advanced degrees of deafness, has convinced me that, even now, the effects of adenoids are not so

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**Practitioner.*

fully appreciated by practitioners as they should be. I wish, therefore, in this short article to make an attempt to point out, as tersely as possible the baleful influence of these growths upon the health, education, and future of those who suffer from them.

It was not until 1868 that the pharyngeal tonsil, first seen with the laryngoscope by Czermak, was studied histologically and described by Luschka and Koliker, the former of whom is associated with it by name. Lusechka's tonsil makes its appearance in the seventh month of fœtal life, as a dissemination of round cells in the chorion. It increases rapidly up to the time of birth, after which period it retrogresses in the normal child until it dissapears completely at about the sixth to the tenth year.

By hypertrophy from a variety of causes, the pharyngeal tonsil gives rise to the condition known as "adenoid vegetations," or simply "adenoids," often accompanied by lesions of the tissues in their neighborhood. The classical description of these growths was first made by Meyer, of Copenhagen, who directed the attention of the profession to their importance and dangers. Since that time numberless authors of different nationalities have verified the observations of Meyer, although they have added little to his masterly description, and have demonstrated that adenoids constitute one of the most frequent and grave diseases of childhood. The disorders that result from them are the cause of a marked retardation of development and create a formidable obstacle to physical and psychical progress in the children who suffer from them. They constitute a very common affection and one which is met with every day, whilst their more remote traces are patent in numerous adults. One has only to examine the backward and less intelligent among school children to find in the majority cases of adenoids, and, as Rauge has said, "their diagnosis is not one of luxury, but of urgency." Of the causes that give rise to them, climatic conditions and humidity of air were the first described, a now exploded idea, since they are found in every climate and every latitude. Heredity, one of the next most quoted factors, is a more probable one, for a tendency to their occurrence is well known to run in families. Probably one of the most fertile cause of adenoids lies in the exanthematous fevers, measles, scarlet fever, and diptheria being especially to blame. The principal cause of their formation, however, lies in a congenital or acquired predisposition. Weak and lymphatic children are the most often attacked, but I am of opinion that repeated inflammations of the nose form one of their most frequent causes.

A goodly number of authors have been occupied with the consideration of mouth breathing in the adolescent and the means of correcting it, by its replacement by nasal respiration, by appropriate breathing exercises. It is however, in the very young child that the genesis of defective respiration must be studied. It is evident that, in the sucking infant who breaths only by the mouth, not only do the nasal cavities not develop, but they may even retrogress. This is a period at which the specialist has no facility for stepping in and it is here, therefore, that the general practitioner has a great opportunity before him. The child, who does not unconsciously devote several hours a day to nasal respiratory exercise, cannot and does not profit completely by the advantages of a normal nose.

The intensity of the respiratory exercise can be seen easily by any one who will watch the infant at the mother's breast. In a normal child naturally, the prolonged current of air that passes through the nasal cavities during the act of sucking regulates the circulation of blood in the nose and, as it were, cleans the nasal fossæ. In the child fed artifically, unless precautions are taken to regulate the sucking and the proper use of the air, dust and micro-organisms of all kinds will stagnate upon the badly irrigated mucus membranes, giving rise to repeated slight inflammations of the naso-pharynx, which bring about disturbances in the nutrition of the pharyngeal tonsil. Hence in badly conducted artificial feeding, and in the use (or rather abuse for it has no use) of the pernicious and abominable "comforter," there is a fruitful etiological factor in the occurrence of adenoids, and it has been pointed out by Barraud that a great majority of adenoid cases occurs amongst the artifically fed, and a minimum in countries where normal maternal feeding is most common. This furnishes one reason more—and a very strong one—for advising all mothers to do their maternal duty and become complete mothers, whenever it lies in their power to do so. However well artificial feeding be carried out, it can never be considered as other than a makeshift. Is this not a well-founded rejoinder to those who ask why adenoid cases seem to grow more common, why they are more often to be found amongst town dwellers and in manufacturing countries than in agricultural districts and in Anglo-Saxon countries than in Spain and Italy.

Passing now to the symptomatology of adenoids, this depends largely upon the degree of their development, upon their form, and upon the posterior nares. When they occur in large masses, the most frequent symptom is the open mouth, due to more or less complete blocking of the naso-pharynx, whereby the child, unable to breathe by the nose, is forced to do so by the mouth. The lower jaw, no longer held against the upper, hangs down and gives the stupid, vacant expression characteristic of the "adenoid face." The upper jaw undergoes a process of arrested development, particularly noticeable at the alveolar borders, so that the dental arch becomes compressed from without inwards, the teeth overlap, and the incisors are pushed forward, the canines outward. The sinuses of the face and of the nasal cavities fail to develop under the stimulus of the normal inspiratory and expiratory currents. The nose becomes flat, the natural folds are almost effaced, and the eyes appear as if level with the head. I would, however, here point out that a great deal has been written concerning the pointed arch of the vault of the palate as a very frequent symptom of adenoids. I have nevertheless found, as I stated in a recent paper,* that this symptom is comparatively uncommon. With this, I think, other observers will be in agreement. One may accept what I have written in the above sentences commencing with the words "The lower jaw" and ending with the words "adenoid face" as frequent and characteristic, but the subsequent observations, dealing with the upper jaw, are by no means proved to be the outcome of nasal obstruction alone and must be considered, at present at least, as debatable matter.

When the adenoid mass is broad and flat, it offers less impediment to respiration and interferes rather with the proper function of the eustachian tube, so that symptoms are more likely to be those of aural complications. It is, therefore, convenient to discuss here the effect of adenoids upon the ears.

It must be remembered that the eustachian tubes open into a cavity—the naso-pharynx—which is a place where the

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secretions arising from the nose and naso-pharynx are most liable to accumulate. It is a locality which favors the passage of infection to the middle ears. Hence, numerous children suffering from large and especially from inflamed and septic adenoids are subject to aural complications, which are of incalculable importance from their variety and gravity. Adenoids may compress the ostium of the eustachian tube, or interfere with its proper movements by their influence upon the muscles working it, so impeding the free entry of air into the tympanum. The air in that cavity normally disappears, partly by the call made upon it by the pharynx at the moment of inspiration or of deglutition, and partly by absorption and, unless this loss is compensated for by the normal action of the tube and the rush of air through the nasal chambers, the balance of atmospheric pressure on the two sides of the tympanic membrane is disturbed. The result is depression of the membrane from without. Simple or infective inflammation of the adenoid mass may, by causing a small mass to swell up, play the same part, with the addition of an extension of inflammation to the lumen of the eustachian tube, setting up a catarrhal or suppurative otitis. It must be pointed out here that, for these occurrences to take place, the adenoid mass need not be large enough to block the naso-pharyngeal cavity; it is sufficient, as often happens, to have the adenoids extending into the fossa of Rosenmuller.

It is possible to follow these complications from their inception, to find a child suffering from periodic attacks of pain in the ears and deafness, with intervals of good hearing, until he reaches a time when the fluctuations are less marked, and he is well on the way to chronic deafness less easy of cure. It is against these comparatively slow and insidious cases that the practitioner has to be so much upon his guard. Catarrhal and suppurative otitis are only the consequence of the extension of inflammation and infection, and are easily and completely arrested provided they are taken in time. It is later on, when cicatrices and adhesions have occurred, that the ear becomes permanently affected, or when suppuration has become established and kept up by polypi, caries, and the like. Then it is that one enters upon the tragedy of lost opportunity. The child has become the victim of a chronic deafness which will handicap him throughout his career, or of a chronic suppuration which, with all its attendant complications and dangers, forms a veritable sword of Damocles. It cannot be borne in mind too strongly by the practitioner, that it is whilst the child is young that the opportunity of *preventing* the occurrence of adenoid, or of their *efficient* removal when present, can be seized and acted upon.

A very large number of adenoid cases are also the subjects of hypertrophied tonsils, which may be large enough to hinder normal respiration. In them attacks of slight, besides more serious, inflammation may occur, which may only be indicated by passing attacks of headache and slight fever. But, besides this, the continued trickling of irritating secretions from an adenoid mass may result in pharyngeal granulations an irritable pharynx which, combined with the drying effect of buccal respiration, produce an irritating and more or less constant characteristic cough. To this matter I shall return later, passing now to defects of phonation and respiratory disorders.

Although, as has been pointed out, adenoids may lead to almost any defect of speech, from simple "adenoid speech" to deaf-mutism, the former condition is the commonest. The nasal passages and naso-pharynx being impermeable, proper vocal resonance is hindered and the voice becomes stifled, producing what Meyer called "dead language," with impossibility of producing nasal sounds.

The normal nasal mucous membrane in the healthy child is well protected against infections by its circulatory arrangements and by the mucus which it secretes, which has been shown by some observers to be microbicidal. Once this mechanism is altered or faulty, the mucous membrane becomes vulnerable and the infections of measles, scarlet fever, and the like are liable to obtain a footing. In feeble and ailing children the nasal mucosa increases in size by acute periods, giving rise to nasal obstruction, and from this repeated simple coryaz a chronic condition may arise, during which there is constant running at the nose, and irritation of the upper air passages from continued buccal respiration and the passage of irritating secretions *via* the post-nasal space. As the nose becomes more blocked, the circulation therein becomes less active, the mucous membrane becomes progressively thickened, habitual stuffiness becomes more marked, "colds" more frequent, and a regular vicious circle is established, until a temporary condition ends in a hypertrophic or hyperplastic rhinitis. To the nasal obstruction thus engendered, or even from the mere presence of adenoids, later may come to be added various nasal malformations, deflected septum, congenital narrowing in young children, nasal polypi, enlargement of the posterior ends of the inferior turbinals, and lastly, crusting from the thickened and altered nasal secretions. The child is no longer able to obtain all the air it needs, and to the inconveniences and results of buccal respiration are added a certain degree of chronic asphyxiation, with disturbed sleep, bad dreams, and night terrors.

Since children who are habitual mouth-breathers only make a minimum effort to respire, the thoracic muscles only preform a minimum amount of work, so that their development does not proceed perfectly. Hence the thoracic cage does not enlarge progressively and its capacity remains at a miminum of development. There is no need to enter here upon a description of the deformities of the chest which may result from inefficient nasal respiration, they are, or should be, well known to every practitioner; what, perhaps, is not so well recognised are the vicious attitudes to which they lead, the forward stoop, the prominent shoulders, the dorsal kyphosis, and the still more frequent scoliosis. They are accompanied by an arrested pulmonary development, especially affecting the apices, so that the tubercle bacillus finds a well-prepared soil, and the repeated cold readily leads to bronchitis and broncho-pneumonia.

I return now to the irritating effect of the secretions in cases of adenoids and obstructed nasal chambers, to which I have already made some allusion. Nasal discharges may be very abundant and are not infrequently continuous. Naturally they escape from the nose by the easiest route. During the day they pass out by the anterior nares, irritating the skin and giving rise to crusts, eczema, and impetigo. At night, when the child is recumbent, the swollen nasal mucosa assists in the escape of secretions into the naso-pharynx, so that there is a more or less continuous stream passing into the larynx, trachea, and œsophagus. This thick, semi-purulent material may thus induce attacks of laryngismus, or may enter the stomach, where it sets up morning nausea and vomiting, or may bring about attacks of gastritis and enteritis. I have met with such cases which, resisting other treatment, have yielded readily to an operation for adenoids.

It is the irritation of these constant streams of septic secretion which causes, with the absorption of septic products from the nose and naso-pharynx, the enlargement of the cervical glands so often found with adenoids, and which, unless they have become tuberculous, disappear after the removal of the offending cause.

Lastly must be considered nerve complications and the effect of adenoids upon the general health of the child. It is a well-established fact that adenoid children are often of unintelligent appearance, are backward in their school work, are sufferers from torpor, and have an inaptitude for mental exertion. They cannot follow their lessons, and are incapable of fixing their attention or sustaining it for any length of time. In a word, they suffer from the "nasal aprosexia" of Guye. *All* adenoid children—the *majority*—do not suffer in this way, but a very appreciable percentage of them so suffer. They listen without understanding, they forget what they have read, and, having learned a lesson with much labor, their memory seems incapable of its retention. This difficulty of fixing the attention soon leads to idleness, and, not infrequently, the child is punished because the master does not recognise the true cause of the inattention. Possibly the real significance of this aprosexia would be better brought home to both master and doctor if they would reflect for one moment upon their own condition during the progress of a bad cold. The acute rhinitis, the morning awakening, with a dry, unpleasant mouth and throat, unrefreshed by sound and normal sleep after a night disturbed by bad and suffocating dreams, the nasal obstruction and stuffy deafness, all contribute to engender a thorough disinclination for work, especially when it requires any intellectual effort. If those who have charge of adenoid children would but remember their own temporary sufferings during a bad head cold, they could better realise the disabilities of children in whom the condition is more or less chronic.

Spencer* has well brought out the nervous results of nasal obstruction and adenoids—the disorders of sleep, stammering, habitual headache, vertigo, and depression, the indolence and

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feeble memory—from which the victims suffer. There is no need to enlarge upon these conditions here.

Children with marked adenoids suffer from defective hæmatosis, and Lichtwitz and Sabrazes* have shown, in their researches upon the blood of adenoid cases, that the degree of adenoid cachexia is not in direct relation to the size of the growths. Further, many adenoid children are in a condition of chronic septic absorption, which alone is incompatible with a healthy general condition.

If the picture I have drawn of the adenoid child is painted in somewhat strong colors, it is none the less true. It is taken from life and should, perhaps, be likened rather to a picture done by the "kinemacolor" process than to any ordinary color sketch. Nor have I said one tithe of what can be said. The ultimate effects of adenoids upon the child grown to maturity would alone fill a long article. His career might have been traced from the time when, hearing badly and the victim of aprosexia, he took in with difficulty the explanations given of his lessons by his master. It might have been shown how, by nature listless, he became quickly tired by any attempt at sustained attention, passed to inattention, lost pace with his schoolfellows, until, although of normal intellectual fitness, he found himself always at the tail-end of his class. How, with a handicapped school life behind him and the world before him, he found the professions barred to him, the public services impossible, and himself a wasted man, wanted be no one, in a struggle which makes life burdensome.

Even where the story is marked less strongly the results may be scarcely less disastrous. It cannot be too vigorously stated or too constantly reiterated that chronic deafness in the prime of adult life depends, in the vast majority of cases, upon slow and progressive alterations, long unsuspected, because so insidious, in the middle ear. The fact that much of our normal auditory acuity is not required in everyday urban life, makes this slow progress the more dangerous, for, so long as a conversation can be followed, or amusements enjoyed, the trouble passes unchallenged, and it is often not until hearing in one ear is nearly gone and that of the other begins to go that the patient awakens to his defect. It is in the course of the first years of life that the auditory apparatus is most exposed to inflammatory changes, and it is then that the foundations of chronic catarrhal deafness are laid down in the delicate middle ear, to develop insidiously and to overtake the victim somewhere about the full activity of the period comprised between the twenty-fifth and thirty-fifth years.

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INTESTINAL PARASITES IN CHILDREN

BY

JAMES FREDERIC GOODHART, M.D.

Consulting Physician to the Evelina Hospital for Sick Children; Consulting Physician to Guy's Hospital; Late Demonstrator of Morbid Anatomy and Lecturer on Pathology in its Medical School.

Five varities of worms infest the alimenary canal of children—the oxyuris vermicularis, the ascaris lumbricoides, the tænia mediocanellata, the tænia solium, and the trichocephalus dispar. The names are given in the orders of frequency. In one hundred consecutive autopsies on children between the ages of two and twelve years at the Hospital for Sick Children, Great Ormond Street, we found the oxyuris vermicularis in thirty-four cases and the trichocephalus dispar in eight. The first two and the last are nematodes or tape-worms. The oxyuris vermicularis or small thread-worm inhabits the colon, particularly of children. There is some difference of opinion in the present day as to the part of the colon which is the more infested. It has been generally taught that the sigmoid flexure and rectum are the favorite habitat of this worm, but from a careful examination in over two hundred autopsies we have satisfied ourselves that it is far commoner in the cæcum, and in many cases is only present in the cæcum. The vermiform appendix also so often contains immature thread-worms as to suggest that they may, at any rate in some cases, find a breeding-ground there. It is a fusiform, whitish worm, the female being from a quarter to a half inch in length. The male is smaller, and usually with a curl of its more blunted tail. The eggs are oval, with the surface flattened, and usually contain a formed embryo. They are said to be introduced by the mouth and hatched in the stomach, whence they pass onwards to their habitat in the large intestine. According to Kuchenmeister, one person is a sufficient host for all stages of the worm, but Leuckart considers that the ova must be discharged and taken into the stomach, there to be partially digested, and the embryo set free before the worm can come to maturity. This is not a question of much importance, for it is admitted that one and the same child can act the part of a second host by reinfecting itself—an easy matter—by means of the fingers, which are used indiscriminately for scratching the irritated outlets and conveying food to the mouth.

The ascaris lumbricoides, a round worm, is not at all unlike the common garden worm, but paler and more tapering. The male measures four to six inches, and is smaller than the female. The latter is ten or twelve inches in length, and is often seen, when it has been subjected to slight pressure, with a bundle of processes hanging from its ventural surface; these are the extruded overies. The eggs are oval, 1-340 inch in length, have a nodulated shell, are produced in large numbers, and do not contain a formed embryo at the time of their discharge. With regard to the shell, Bristowe says: "they have a thick, fine nodulated shell." But Cobbold makes no mention of any such nodulation—he talks of a granular yolk and depicts a very nodular-looking one for the ascaris mystax—although a shell itself is quite smooth.

Dr. F. Taylor writes: "They are nodulated on the surface from the presence of an albuminous substance deposited outside the shell."

It is important to bear the characteristics of the oval in mind, because the round worm is somewhat obstinate in resisting treatment. It does not reveal its presence in the s ools as a seething mass of thread-worms do, and microscopic examination of the stool may be necessary to determine its presence. It inhabits the small intestine, and is seldom solitary. Any number may be found, often from two to three or five, and occasionally much larger numbers. The ova are very indestructable, they remain dormant for a long period, and in this state, or perhaps some other intermediate larval one, the worms are taken into the stomach by means of unwashed food or unfiltered water.

The trichocephalus dispar, or whip-worm, is about one and three-quarter inches long. The tail-end is thick and rounded, the head is at the thin tapering end which forms the last of the whip, and is often found fixed to the mucous membrane as if embedded in it. We have always found this worm in the cæcum or ascending colon, once only in the vermiform appendix. It is hardly ever solitary, usually two or three are present—we have once found five. Its ovum is distinguished by the little knob-like eminence at each end of it.

The tape-worms (tænia solium and tænia mediocanellata) are far less common than either the ascaris lumbricoides or the oxyuris, but they are occasionally present even in infants if they have been weaned, and in older children they are not uncommon. Inasmuch as the same treatment is efficient for both T. solium and T. mediocanellata, and the symptoms do not differ for either, it is not a matter of much practical moment to distinguish between them, but, shortly stated, the tænia mediocanellata or beef tape-worm; it is thicker and tougher generally, it has a uterus which is much more finely subdivided, and the head is provided with suckers, but not with hooklets. The anterior sucker of the tænia solium is provided with hooklets. The ripe segments or proglottides are passed and the ova distributed in this way. They are then swallowed and become the cysticercus of the next host, the cytsicercus in turn becoming the mature tape-worm by passing with food, etc., into the intestinal canal of man. Tape-worms require nine or ten weeks to reach maturity, so that if after the administration of anthelmintics the worm passes minus its head, that time will probably elapse before segments again begin to appear in the fæces. Some time ago a girl of eleven years old was under treatment at the Evelina Hospital for tape-worm. The oil of male fern effected the passage of a great length of worm, but not of the head. She was directed to take no more medicine until she should again see the joints of the tape-worm, when she was to return, and on several subsequent occassions, the treatment failed to procure the expulsion of the head, she reappeared at intervals of nine to eleven weeks.

Florence C. aged eleven, came first under treatment on June 18, 1878. A drachm or the oil of male fern was prescribed in the usual way with castor-oil. She reappeared on Sept. 6th, and was under treatment till the 24th; from November 29th, she was under treatment till December 6th; from February 14th, till May 2nd; July 12th, till September 20th; on December 12 she came again, and at this, her last attendance she took three drachms of the ext. filicis liquidum for a dose. In every instance the worm was detached close up to the head, but the head itself was not found.

Symptoms and Diagnosis.—All sorts of symptoms have at one time or another been ascribed to worms. They have mostly been nervous, such as convulsions, epilepsy, cramp, choreic movements or nightmare, and have been supposed to be due to some reflex nervous discharge set going by the local irritation. But it is very doubtful whether any are of diagnostic importance. The presence of worms can only be diagnosed with certainty by finding them or their ova in the evacuations or about the anus. The habit of picking the nose is the popular indication, but it is often no indication at all. Pruritus ani is of more value, and when it is observed should always lead to a careful inspection of the fæces, and even to the use of enemata with the view to detecting the worms themselves. Other symptoms, such as irregularity of pupils, discoloration round the eyes, tumidity of the abdomen with colicky pains, diarrhea, variability of appetite, etc., only need mention to show that they can have no special significance, although they may probably be some of the many symptoms of feeble health, impaired digestion and irregularity of the bowels, which are often present when worms abound. The ascaris lumbricoides, however, inhabiting, as it does, the the small intestine, and often in large numbers, is apt to wander into the stomach, and is sometimes associated with very acute symptoms. Sudden attacks of fever and vomiting are apt to supervene, and to assume even the aspect of a bad form of gastritis or of severe cerebral disease. We have seen several such cases which looked grave, but which ended in an attack of sickness and the expulsion of an ascaris. The round worm would seem to be particularly prone to induce convulsions. Nor need we wonder that such is the case, inhabiting the intestine, as they may do, by hundreds, and at a time of life when the nervous system has not yet reached the stable condition it assumes in healthy adult age. Dr. Wast has, however, seen very severe convulsions with thread-worms, and other authors have equally noticed the liability to nervous disturbances which exists with the tape-worm.

Thread-worms, collecting in great numbers in the rectum, are apt to excite local irritation, mucous diarrhea, prolapsus, ani, and the occasional passage of blood from the bowels. In the male they may excite priapism, and some of the symptoms of stone. Frequent micturition is a common symptom of their presence, and in rare cases hæmaturia also, and the uneasy sensations about the genital organs, may induce the habit of masturbation. In the female, a purulent discharge from the vagina is by no means uncommon. Worms of any kind are liable to occasion a mucous diarrhea, associated with a good deal of tenesmus.

Tape-worms give rise to fewer local symptoms, but they are more often associated with progressive and even marked emaciation.

The symptoms of worms are none of them pathognomonic, so that it is impossible to make a diagnosis off-hand. Supposing that a child is emaciating slowly, has a frequent cough, occasional diarrhea, perhaps febrile attacks, and sleeps badly at night, it might equally well be suffering from commencing tuberculosis or from worms. It is indeed only by observation that the question can be settled. In all cases of doubt an aperient should be given and the evacuations carefully examined. Treatment of this kind can scarcely fail to clear up the difficulty.

Treatment.—Worms, like tinea, usually accompany a state of health which, if it cannot be called bad, is yet below a normal standard; and, for one child in whom nothing but health can be detected, there will be many who are pale, thin, and unkempt. Possibly in the case of tape-worm the enfeeblement may in part be due to the presence of the parasite, but this can hardly be so for other forms of worm, and the existence of any kind of intestinal parasite may be considered an evidence of the need of tonic treatment and better hygiene. As a general prophylactic, salt is to be commended, and we are of opinion that this is a necessary article of diet, which is much neglected in feeding children. But general principles of this kind must be associated with special treatment directed to the death and expulsion of the worm, and this will very for the different species.

Thread-worms should be attacked locally by means of enemata. A drachm of sulphate of iron may be added to a pint of infusion of quassia, and a third part of it injected on alternate mornings. Simple salt and water (ʒij to the Oj) is recommended by some, limewater or alum (ʒj to the Oj) by others. Enemata of this kind may be continued as long as may be necessary, and are moderately certain of success. But mothers and nurses often bungle over their administration, and either frighten the child so much that repetition of the treatment is impossible or the fluid is allowed to run away again as soon as it is injected, when naturally enough a failure results. The lower bowel should be first emptied by an injection of warm soap and water. The child should lie upon a bed with the buttocks elevated. The enema is best administered by a Lund's inflator, the tube being passed carefully to the upper part of the rectum, and any expulsive efforts that may be excited are neutralised by the anal air-pad, which is one of the features of that instrument. In this way the fluid may be made to reach a considerable part of the colon, and the remedy is so much the more likely to be effective. The enema should be retained as long as possible. As, however, there is good evidence that the worm resides chiefly in the cæcum, brisk purgatives, such as calomel with jalap, will usually be necessary if a radical cure is to be effected, and probably more effectual than any simple purgative is a combination of santonin with calomel. Sulphate of iron and compound decoction of aloes, may also be given; and iron in some form should be continued for some time after the extermination of the worms.

The irritation about the rectum is best relieved by smearing the parts with a combination of mercurial ointment and glycerinum acidi carbolici in equal portions. Angel Money recommended an ointment of cocaine one part, bismuth subnitrate two parts, lanolin twenty parts; and santonin has been highly spoken of as a suppository for the relief of this troublesome symptom.

The round worm is best treated by santonin, which may be given in doses of one or two grains three times a day, either disguised in bread and honey or jam, or a single dose may be given on alternate evenings. Others give a two or three grain dose on alternate nights for three nights, followed by a brisk purgative the morning following each dose. The santonin lozenge of the British Pharmacopœia contains a grain of the remedy, and it is a useful addition to our means of administration of the drug. After this treatment some purgative should be administrated, ʒss of castor-oil mixture, or two grains or jalap resin in milk, being as good as any. Two or three doses usually suffice. A tonic treatment of iron is to be continued for some time after the dislodgment of the worms.

Tape-worm.—Many drugs have been proposed for the destruction of the tape-worm, pomegranate root bark, turpentine, cusso, and male fern being most prominently supported. But with children as with adults, although it is advisable to have many strings to the bow, the oil of male fern is the one remedy in almost exclusive use. It is a drug which is apparently harmless even in doses of considerable size. Half a drachm or more of the liquid extract is a proper dose for a child of six or seven. It may be given as an emulsion with ℥ss of pulv. tragacanthæ co. either in milk or in any sweetened aromatic water that may be pleasant to the child. It may also be given in capsules five drops in each. The anthelmintic must be given after a fast, and with the intestine previously emptied of its contents by castor-oil. After an early tea the castor-oil should be given, and the next morning, as early as possible, so as to avoid too prolonged a fast—the male fern; the child should lie in bed, a second dose of castor-oil being given two or three hours later, or some other mild aperient should this prove too nauseating. A breakfast of warm milk may be made at the same time, or after. Should this treatment fail, turpentine may be given—twenty drops of oil of turpentine three times a day—the food being confined to liquids. The turpentine may be given, and must be followed up by a purgative every day or two. Failing these, there is cusso in ʒii. doses, followed in two hours by castor-oil. Kamala is given in honey or treacle ʒj. for a dose, and naphthaline in doses of two grains twice a day has also been recommended.

Governor Dix Signs the Sterilization Bill.—The bill providing for the sterilization of criminals and defectives, which was introduced by Dr. R. P. Bush, from Chemung County, and which was passed by both houses, was signed by Governor Dix. This law has been urged in order to reduce the number of children with inherited tendencies toward insanity and crime. New York is the sixth State in the Union to adopt this law. The section appears under the Public Service Law, and is entitled, Operations for the Prevention of Procreation. The Governor is empowered to appoint one surgeon, one neurologist and one practitioner of medicine, each with at least ten years experience, to be known as the Board of Examiners for Feeble Minded, Criminals and Other Defectives.

SOCIETY TRANSACTIONS

ST. LOUIS PEDIATRIC SOCIETY

Stated Meeting, Jan. 26, 1912

The Elbow Sign in Scarlet Fever.—Dr. Gustave Lippmann, read this paper. During the scarlet fever epidemic in the fall of 1910, the opportunity presented itself for me to observe a large number of scarlet fever cases at the City Infectious Hospital. In the examination of these cases I noted a constant sign to which I gave special attention. Realizing the errors which often beset the announcement of any new clinical ovbseration, I abstained from publishing any description of it, believing it merited further confirmatory evidence before giving it the importance which I now believe it deserves. The fact that there appeared in the *Archives de Medicine des Enfants*, Feb. 1911, a very excellent and comprehensive paper by Dr. C. Pastia entitled: "Le Signe Du Pli Du Cowde Dans La Scarlatina," in which he describes accurately the same clinical phenomenon which I had observed some months before, fortifies me in my original conclusion. This clinical sign consists of a linear erythematous eruption following the transverse fold in the skin at the flexion of either elbow. The color of this linear eruption is of a more decidedly scarlet color than the scarletinal eruption and further emphasizes itself by two facts which I have observed in every instance, firstly that it is seen at the very beginning of the development of the exanthem and secondly that it persists after the eruption has faded away. This latter point is very often helpful in forming a positive conclusion as to the nature of the attack particularly if the general eruption happens to be of a fleeting character. That this elbow sign is of a distinctly different character from the scarletinal rash, is proven in that pressure does not cause it to bleach but rather intensifies the sign, since its etiology is clearly due to capillary hemorrhage into the fold of the skin, making it impossible for pressure or stretching of the skin to obliterate it. The sign from the nature of its cause does not retain its dark red color but gradually and slowly fades away characteristic of capillary hemorrhage into the skin. It has also been observed in the negro, modified to the extent caused by the color of the skin. The importance of this new sign can best be illustrated by the brief reports of two cases occuring in my service in the infectious hospital. Dec. 5th, 1910—A. K. 5 years, admitted to hospital with diagnosis scarletina by family physician. Junior physician noticed angina with an eruption, temperature 100°. Put in scarlet fever building. No elbow sign. Dec. 10th, temperature 104°, elbow sign very prominent, sore throat. Typical eruption of scarletina within twenty-four hours. Jan. 26th, 1911, F. H. age 23 years, admitted to hospital with diagnosis of scarletina from City Dispensary. No elbow sign, angina, strawberry tongue: temperature 103°. Put in isolation room. Blood count shows leucopenia. Diagnosis, typhoid fever. It would be out of place for me to report any further individual cases but let it suffice for me to say that it is present in almost every instance. Pastia in his report makes the assertion that he observed it in Bukerest clinic 94 out of 100 and in Hutinel's clinic in Paris 29 times out of 30. The fact that the sign has been accurately observed by a pediatrician in the clinics of Europe simultaneously with a large number of cases here and with the same uniformity of results makes one feel that the elbow sign in scarlet fever is of as great a diagnostic help in scarlet fever as are the Koplik spots in the early diagnosis of measles.

Discussion.

Dr. Jules M. Brady: I have been very much interested in the elbow sign of Pastia; I understand however from the literature that it appears on other portions of the body, in the axilla, popliteal space, in the folds of the nates. We all realize how difficult it is at times to make a positive diagnosis of scarlet fever. The rash may be fleeting or may have entirely disappeared by the time the patient comes under observation. The fact that this sign persists for such a long time, furthermore as the sign is never found in any other disease, except in a few cases of measles and as it is almost invariably present in this disease, it would appear that Pastia's name will bear the same relation to scarlet fever that Koplik bears to measles.

I have had the opportunity of examining a large number of children suffering from various rashes accompaning intestinal disturbances, following diphtheria antitoxin etc., but have never found this sign present. A recent case of scarlet fever under observation showed the sign very nicely.

Dr. Zahorsky: I would like to ask how do you produce the Elbow Sign in the beginning? I do not know just how my attention was called to this sign first, but I also was referred to— article. The first time I really saw it, with Dr. Amerland, it was positively a malignant case of scarlet fever. Here it was marked; the arm crease was very clear. Since then I have tried to find it in other cases. I can only report four cases in which I have had it since then, and two of them had it according to my view and two did not. Now in the two that did not have it, did they have scarlet fever, that is the question. They had sore throats, but in neither case was there desquamation; so that I am in the same position as Dr. Brady. I have looked for it in other cases, in German measles recently—but it was not present there.

I have had two or three other cases of roseola in babies, but I did not find any evidence of it. So as far as I understand, the sign is due to scarlet hemorrhages in this crease, and in scarlet fever there is a condition as you all know, of some tendency for the capillaries to break; in the creases of the skin, they seem to break more readily and there is slight transfusion of the blood.

I have not done like Dr. Lippmann states, using the magnifying glass. It may be found in any place where the skin is creased, normally it is white while in scarlet fever it is a bluish red tinge, syanotic.

Dr. T. C. Hempelmann: Through Dr. Lippman's kindness I was able to see some of the cases out at the hospital for contagious diseases, and he demonstrated this sign to my entire satisfaction. But I also had the impression that it was not necessary to have linear lesions, and that punctate hemorrhages were sufficient, so I am sorry I mislead Dr. Hurford.

The two cases Dr. Hurford mentioned I saw also, and there seemed to be no question about there being scarlet fever, and yet the signs were apparently not present.

Dr. Lippmann: In answer to Dr. Luton, I will say that there are sometimes one and sometimes two lines. Dr. Zahorsky asks how do you produce the Elbow Sign in the beginning. I had no idea of producing it, it was simply there. It is the constant pressure in the skin in the elbow produced by the normal position which causes it. I have never found it necessary to produce it artifically. In answer to Dr. Clemens I would say that sign appears in mild cases as well as severe ones.

As I mentioned before it is very likely in the elbow on account of the pressure there or the capillaries. This sign first came to my attention during an epidemic of measles. I did not see a single elbow sign in measles alone, but when suddenly a nurse took scarlet fever and brought it into the measles ward, then it was that I first noticed it. The technique of seeing this sign is to extend the arm, or better stretch the skin until it gets white, then these hemorrhagic lesion lines will appear very clearly. I must say that in private practice it may not be as important as in hospital work. It appears before the rash appears and persists even after desquamation. The magnifying glass is also of value to you, then you can see these hemorrhagic lines sharper and clearer.

Experiences in Manual Extubation.—Dr. Luton: Some few years ago, following a description of a manual method of extubation by Dr. Clemens in one of our local journals, I tried it several times, and found it very satisfactory. At that time I demonstrated it to internes and nurses at the Children's Hospital, as a method they might have to use in emergencies. The patient was put on the table lying on the abdomen, with the head held over the edge of the table. The head being extended and the lower edge of the tube located by the index finger by a combination of an upward pressure by the finger and a quick flexion of the head, the tube was pulled out of the larynx, and in this particular instance thrown completely out of the mouth into a basin on the floor.

Dr. Zahorsky:—I have tried it twice and both times I failed . It seemed the difficulty was that I did not get below the end of the tube. How far down does the tube go?

Answering Dr. Zahorsky—It does not seem to stop at the end of the notch.

Dr. Jules M. Brady:—Some months ago Dr. Clemens and I made observations at St. Ann's on some babies dead of nutritional disturbances. After first having performed intubation we did a tracheotomy. My impression is that the tube does not extend down near as far as Dr. Zahorsky says. I do not think that this can be the reason for the difficulty in performing extubation. There always was plenty of space between the end of the tube and the notch of the sternum in which the finger could be inserted.

Section on Diseases of Children*

AMERICAN MEDICAL ASSOCIATION

Atlantic City Meeting, June 1912

Dr. Isaac Abt in the Chair

Chairman's Address.—Dr. Isaac A. Abt of Chicago discussed the necessity for a more thorough study of gastro-intestinal diseases. After thoroughly reviewing the history of the study of this condition from the very early literature of East India down to the present time, he urged retrospective study in order that studies already made might not be duplicated. He called attention to the very scientific classifications of these conditions made in the middle of the nineteenth century. He said that bacteriological research had failed to materially aid in the classification of disease, and that the improper use of designating terms had been a constant source of confusion and that pathological conditions had been repeatedly assumed which did not exist. He called particular attention for division between the study of gastro-intestinal diseases of infants and those of older children. He thought that the present danger was to drift too far afield, and that while bearing in mind the ground already covered, careful account should be kept of the progress being made.

The Ability of Women to Nurse Their Children.—Dr. J. P. Crozer Griffith of Philadelphia read this paper, giving statistics to show the importance of breast feeding as compared with artificial feeding, and the influence which the latter had on the death rate, and the subsequent later health of children. He said that in many instances the deleterious effects of artificial feeding might even be traced to adult life. He thought that probably over 60 per cent of women would be able to nurse their children under proper instruction and care. He said that among the poor probably some artificial feeding was due to the women being compelled to earn their own and their children's living, but that even here partial breast feeding would be more general if its importance was emphasized by physicians. He believed that actual disability that could not be corrected by careful instruction existed to a very small degree, and that physicians were too ready to abandon efforts to establish breast feeding.

Supplemental Breast Feeding in Infants.—Dr. H. M. McClanahan of Omaha gave the general indications for supplemental feeding as follows:

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*From *Medical Record*, June 8 and 15, 1912.

The better development of the infant, and the health and comfort of the mother. He said that the mother's milk being the natural food of the infant, it was more especially adapted, chemically, to the needs of the infant's body than any artificially modified milk could possibly be, therefore even a small amount was of value. He gave statistics from his own practice of 400 tabulated cases showing that in only fourteen cases was there real inability to nurse the child. His cases showed that even a small quantity of mother's milk enabled the child to assimilate the artificial food more fully, thus increasing the weight and general health of the infant. He called attention to the responsibility of physicians to teach mothers the necessity of breast feeding.

Dr. D. B. English of Summit, N. J., said that in his experience nursing and feeding at the same time, putting the child to one breast, then to the bottle, then to the other breast, alternating until it was sufficiently fed gave excellent results, the elements of the mother's milk, so necessary to the infant, thus being thoroughly mixed with the artificial food. He said that some preferred to give first the mother's milk and then the bottle feeding, or vice versa, but in his experience the practice of alternating the foods helped digestion, maintained the mother's supply, and kept the child in good condition.

Dr. Cram of Milwaukee thought that often the scant supply of mother's milk was due to her not having had sufficient sleep, and that in his practice even such a measure as removing the infant for a short time produced good results.

Dr. Southworth of New York said that one reason that babies did so much better on breast milk than any other food was because it did not require supervision. Bottle foods had to be constantly changed and modified to adapt them to the child's needs, but this was all done naturally when breast milk was fed. But even in view of this he did not think it would be well to give no supervision to breast feeding, because sometimes when the mother had plenty of milk the child did not do well. He did not believe there were many cases of actually bad milk, although there were many that were scanty on account of improper attention. He did not believe that too much dependence should be placed upon the analysis of milk, but that rather that the mother's physical condition should be looked after. He believed that too infrequent feedings tended to lessen the quantity on account of the lack of stimulation of the breasts. He thought that breast feeding was a safeguard to the health of the child.

Dr. Shaw of Albany thought that many infant's lives were saved by even one small breast feeding. In institutions where but one wet nurse was employed the mortality was much lower than before this measure was introduced. He criticised the statement that the pump did not stimulate the breast, stating that in his practice it had proven beneficial. He also disagreed with Dr. Southworth's statement that the milk analysis was of no value. He had found it of distinct advantage.

Dr. Churchill of Chicago said that at the Children's Memorial Hospital for some time one wet nurse had been employed during the winter and two during the summer with excellent results. He stated that their nurses were not allotted for the feeding of certain children, but that all the milk the nurses supplied was removed by means of a breast pump and divided among all the children so that each child had some. He said that one mother for a few weeks gave five quarts of milk daily, which seemed to disprove the statement that the breast pump was not of value in increasing the quanity. He said that careful records were kept and they knew that the quantity secreted was exact.

Dr. Johnson of Grand Rapids, Mich., said that in small towns difficulty was experienced in getting wet nurses, so that they had resorted to the practice of getting small amounts of milk from a number of nursing mothers, varying from an ounce to a pint, and that in this way they had had excellent results with infant feeding. In Berlin he had procured statistics showing that in mixed feeding (part bottle and part breast) the mortality was about 10 per cent while the entirely artificially fed gave a much higher rate. He cited one group of thirty families among which there were eighty children, partly bottle and partly breast fed; at the end of the eighth year investigation of these families showed that all the bottle-fed children had died.

Dr. Scott of New York thought that psychic conditions had something to do with the disinclination of some women to nurse their children. That if they would appreciate the necessity for doing so there would be little difficulty in bringing the supply up to normal, or nearly so. He wished to protest against the practice of some obstetricians attempting to feed the child steadily from birth, allowing it to get into a poor condition and then handing it over to the pediatrist.

Dr. Harington of Milwaukee said that the practice of putting the child first to one breast and then to the other was a mistake, because normally the mother had a rest of four hours between feedings, and with this practice she got only a rest of two hours to a breast that was not up to normal. He thought that no periodical nursing should be of more than ten to twelve minutes' duration, and that after the lapse of this time the needs of the child should be supplied with a bottle.

Dr. Douglas of Detroit believed that every woman could nurse her child if she was correctly managed. He said that successful feeding was not merely a matter of getting a certain amount of liquid into the child; that the mother's habits of diet, exercise and rest should be regular so that the best results might be obtained. After this had been done, if the stool was still not in normal condition, he thought that some readjustment of the method of feeding should be instituted. He emphasized the necessity for analysis of the breast milk that it might be known what the child was getting.

Dr. Denny of Brookline, Mass., said that Dr. McClanahan omitted to state the advantages associated with giving the child at an early period cow's milk, so that if sudden weaning was necessary no serious disturbance occured.

Dr. Zahorsky of St. Louis said that the main difficulty was the lack of definite knowledge regarding the whole subject of human lactation and infant feeding. He thought that if the causes of the unpleasant sensations which nursing aroused in some mothers could be discovered this knowledge would dispose of many cases.

Dr. Southworth wished to correct Dr. Shaw's impressions derived from the speaker's remarks. He said he did not intend to intimate that the analysis of breast milk was of no value, but to discourage immediate weaning upon the results of the first findings.

Dr. Brady of St. Louis thought that occasionally children were weaned because there was too much milk and they were overfed.

Long Interval Feeding of Premature Infants.—Dr. J. C. Litzenberg of Minneapolis reported cases showing that a marked increase in weight occurred when premature babies had been taken from the short-interval feedings, so generally recommended, and had been fed at intervals of three to four hours. His charts showed an almost instant advance and no digestive disturbance. It had also the advantage of causing less disturbance to the child, permitting it to sleep for long periods.

A Plea for Longer Intervals in Milk-Feeding.—Julius H. Comroe of York, Pa., read this paper, showing that the average healthy infant received an excessive number of feedings during the first year. He thought that many of the signs of so-called insufficient nursings were more properly attributable to incomplete emptying of the stomach between feedings. He thought that the advantages of longer intervals would be more complete gastric digestion; more complete emptying of the stomach; increase in quality and and quantity of the milk supply in the breast-fed; more rest for the infant and the mother. He thought that if the method were thoroughly tried out the present almost universal rule of two-hour periods would become less common.

Dr. Lowenberg of Philadelphia said that his good results from short-interval periods would not justify him in changing. He criticised the reader of the paper for being as dogmatic in his plea for four-hour intervals as he had accused others of being in their use of the two-hour period. Statistics in the speaker's practice did not show that children fed at longer periods weighed more than those fed at short intervals.

Dr. Miller of Atlantic City had found, by use of the stomach-tube, that the child's stomach did not empty for at least four hours. He said that the results of past experience should as a rule, be the guide, but when confronted with an infant with gastric indigestion, vomiting and other pathological symptoms he thought longer periods of rest would prove beneficial.

Dr. J. L. Morse of Boston called attention to the fact that usually the term "premature infant" implied a much weaker and feebler infant than those shown in the cases recited and that in these cases where often only a teaspoonful of food could be given at a time long periods were not possible or feasible. He called attention to the absolute necessity of adapting the feeding and the intervals between feeding to each individual case.

Dr. Royster of Norfolk, Va., said that a baby was not a laboratory, and that therefore there could be no hard and fast rule for its feeding; that it was one thing to measure the stomach of a child and another to enable it to take and absorb and digest the amount of food that could be put into such a sized stomach. He wished Dr. Litzenberg in closing to state at what time he put the child to the breast of the eclamptic mother, and what the toxic condition of the milk was.

Dr. Englis of Summit N. J., said that infants could not be fed by a clock, that when their stomachs were empty they would make the fact known and that until they did they should not be fed. He thought that other measures than feeding should be tried when the infant cried and that if these measures failed there was time enough to feed it. He thought that not as much harm would come from eight-hour intervals between feedings if the child would stand it as from too frequent feedings.

Dr. Hess of Chicago said that he did believe it necessary to feed a large amount in order to make a premature child gain, but that it did seem, from his experience, that the premature would take more in proportion to its weight in order to gain than the normal infant. In his experience he had had infants weighing 1500 grams gain on 70 calories. He said he rarely fed at shorter than three-hour intervals, but kept up the number of calories by concentration of the food.

Dr. Southworth of New York called attention to the reaction from the recently-widely-recommended four-hour interval in the German literature, the substance of which was that where milk was inclined to be scant there was not sufficient breast-stimulation in four-hour feedings to stimulate it.

Dr. McCleve of California had used the four-hour intervals successfully in his practice. He said, in reply to the criticism of the dogmatic recommendation of the four-hour interval, that it permitted of just as much adaptation to individual cases as did two-hour intervals. He called attention to the fact that modified cow's milk was the best substitute for mother's milk.

Dr. Zahorsky of St. Louis emphasized the fact that the general term "when an infant's stomach is empty" was only a relative one, depending entirely upon the amount of food taken, and that when only a little could be taken short intervals should intervene between feedings.

Dr. Litzenberg in closing said that he had not offered his method as a propaganda, but as a method to be tried in cases in which all other methods had failed. He said in reply to Dr. Royster, that the child of the eclamptic patient was fed by another woman and not put to its mother's breast until the mother's condition was normal.

Dr. Comroe, in closing said that the criticism seemed to come from those who had not tried the four-hour intervals, and who therefore were hardly in a position to speak authoritatively.

Intestinal Toxemia in the New born.—Dr. John Lovett Morse of Boston called attention to the almost uniform symptoms presented in these cases. Babies, normal at birth, become suddenly sick on the third or fourth day, were unduly quiet or markedly restless. The rise of temperature was moderate. The meconium was usually not all passed. He said that these symptoms were probably due to absorption of toxins of meconium occurring soon after birth. In his experience recovery was prompt when the intestines were thoroughly cleaned out. He recited several cases and showed the close resemblance to other infantile disorders.

Dr. Goodman of Jersey Shore, Pa., called attention to the clinical and laboratory research that had been done on this class of cases, stating that French physicians had inoculated guinea pigs with the watery extract of the contents of bowels in such cases, with the prompt death of the guinea pig; after treatment, they had again similarly inoculated guinea pigs with no harmful results. Inoculation with fluid from spinal puncture had also proven fatal to guinea pigs, showing the toxemia to be quite general.

Dr. Lowenberg of Philadelphia said that he had often looked upon these cases as instances of infection from the bronchi, or, as cases of simple pneumonia, and asked Dr. Morse if he had ever considered these possibilities.

Dr. Churchill of Chicago said his indications in this class of cases had not been so clear. He said that he always considered the possibility of pneumonia and that he had had a number of cases that gave a high leucocyte count.

Dr. Scott of New York said that there was undoubtedly some chemical combination between the sugar and proteid content of the mother's milk and the bacteria of the nipple that causes this condition.

Dr. McClanahan of Omaha said that if the condition was met promptly and immediately by a cleaning out of the alimentary canal the prognosis was good.

Dr. Morse, in closing, said that he had always used caster oil in these cases because of its quicker and more effective action. He said that he thought if all the indications of this condition were clearly in mind it would scarcely be confused with other conditions.

Pellagra in Children.—This paper was read by Dr. J. Ross Snyder of Birmingham, Ala. The paper embraced a brief history of the disease in the Southern States; the widely differing theories as to its etiology; the frequency of its occurrence in children; the symptoms presenting in children that differed from those in adults, and the difference in the mortality. The author summed up with a preliminary report of his experience together with that of the various physicians with whom he had corresponded, the substance of which was that while pellagra did occur in young children, it was more common after the age of eighteen months and that approximately 10 per cent. of all cases were children under the fifteenth year.

Dr. Butterworth of New Orleans called attention to the fact that Bass of New Orleans had fed chickens with spoiled corn and that the chickens developed unmistakable symptoms of pellagra, thereby seeming to establish the theory so common that the use of corn does have something to do with the development of the disease. He said that the symptoms occur in order as follows: intestinal disturbances, the cutaneous eruption, and the nervous symptoms.

The Menace to the Young Child of the Common Infectious Cold.—Dr. Thomas Southworth of New York brought out the fact that besides the injury of the cold itself upon the development of the child, it frequently caused otitis, pneumonia, sinus infections and interference with nutrition. He thought that the lack of appreciation of the injurious effects of colds was partly due to the terminology and that if bacteriological investigation could determine a proper classification they would be understood and guarded against. He believed that the most prolific source of infection in young children was from visitors and other members of the family, while in older children the kindergarten, the school, trains and hotels were largely responsible.

Dr. Zahorsky of St. Louis thought that most acute diseases of the upper respiratory tract were due to germs communicated by others. He said that he thought that the term "grippe" was better for this class of infection than the term "cold."

Dr. McClanahan of Omaha said that in nursing mothers he had cautioned against coughing and sneezing near the child, and even the protection against her breath by the use of a mask or handkerchief. In a series of eleven cases that had developed nephritis he found five giving no other etiological factor than a common cold.

Dr. Scott of New York said that he did not believe that the cold required so much emphasis as the fact that it prepared the way for the invasion of other bacteria which are more or less universally present.

Dr. McCleve of California said that in his practice he treated the well as well as the ailing members of the families, using as his remedies of choice hexamethylenamine and benzoate of soda. He said that in one tuberculosis sanitorium he had heard it reported that when one inmate had a cold a vaccine from his excreta was prepared and inoculated into the others.

Dr. Kerr of Brooklyn said that most healthy children carried numbers of germs which, after a cold, found a field of invasion, therefore precautions were necessary. He deplored the practice of housing in, without fresh air, the child with a cold. He believed that if one exposed to infection had plenty of fresh air he would be more apt to throw off the symptoms. He did not believe that the temperature of the air was of importance because all air reached the lungs at uniform temperature through the act of breathing.

Dr. Sedgwick of Minneapolis reemphasized the necessity of eliminating the idea of simple colds from these infections in order to educate the laity to a realization of their danger.

The Properties, Uses and Indications of the Various Carbohydrates in Infant Feeding.—Dr. Henry Dwight Chapin of New York presented this paper, stating that this general term referred to a chemical combination of carbon and water. He said that its function was to supply carbon which would liberate energy and heat when oxidized. In infant feeding there were five forms of carbohydrates used, namely starches, dextrines, maltose, saccharose, and lactose. He thought that some required cooking and predigestion for proper assimilation; others could be taken directly into the blood and the form should be determined by the findings of each individual case.

Dr. Douglas of Detroit said that his experience had been that children would digest a definite amount of casein, irrespective of the addition of corbohydrate. He believed in the addition of starch in its solid form as soon as the child would take it.

Dr. Griffith of Philadelphia called attention to the fact that the feeding of normal infants was simple, while adjustment of foods to sick children required skill and care.

Allergy to Common Foods:—I. Idiosyncrasy to Hen's Eggs.—In reading this paper Dr. Oscar M. Schloss of New York brought out the fact that idiosyncrasy to hen's eggs was far more common than is usually supposed. He said that while single symptoms might present in many cases, it was not uncommon to have them all in a single case. He had found the general symptoms to be first gastrointestinal, then cutaneous, and lastly, general. He said that the recent experimental work on anaphlaxis seemed to indicate that the underlying cause of the idiocyncrasy was protein sensitization or hypersusceptibility of the patient. Experiments showed that the blood of these patients produced a reaction capable of sensitizing guinea pigs to egg white. The condition might be inherited or acquired. In his cases he had succeeded in establishing complete immunity by the careful administration of small quantities, gradually increased until any amount could be tolerated.

Dr. Miller of Atlantic City said that his daughter had shown an idiosyncrasy, but in her case it was only for the yolk of the egg—the white causing no disturbance. He had therefore come to the conclusion that there was some poisonous alkaloid present. He thought that the symptoms were much like those of ptomaine poisoning.

Dr. Denny of Brookline, Mass., reported a case in which there was not only gastric disturbance, but local disturbance from application to the lips. A child of two, in his practice, had been made violently ill after eating but a mouthful of egg. At another time an egg shampoo was used on the same child's head, with an immediate swelling of all parts of the skin that the fluid touched. She had since been gradually immunized so that she could tolerate egg.

Dr. Zahorsky of St. Louis thought that possibly a test of idiosyncrasy could be made by rubbing egg upon the lips, but in view of Dr. Schloss' finding that all did not show the cutaneous infection, doubted its reliability.

Dr. Douglas of Detroit thought that care should be exercised when one had determined to alternate a milk diet with egg, to first determine that there was no such idiosyncrasy.

Dr. Rich of Detroit had noticed a similar anaphylaxis in the milk of nursing mothers. He cited a case of an infant five days old which presented the clinical picture outlined, and which when put on barley water recovered to renew her symptoms when put back to the breast.

Dr. Abt of Chicago called particular attention to the violence of the symptoms, saying that it was usually by accident that the cause of the clincial picture was attributed to this idiosyncrasy.

Dr. Schloss in closing said that he had not before heard of a case in which the yolk of the egg produced the condition and the white did not. He could not explain the variation. He could offer no explanation of the symptoms presenting in the case of the disturbance from mother's milk, no work having been done upon that subject.

Tuberculosis of the Mesenteric Gland in Infants.—Dr. Fritz B. Talbot of Boston concluded from his studies and observations that tuberculosis in the young was almost uniformly of the glands. The mesenteric glands being so intimately connected with digestion, when they become diseased they disturbed the normal digestive process. He thought that if a sufficient number became diseased they formed a wall through which the fat could not pass, and it was thrown off in the stool. He therefore advanced the idea that where large amounts of fat were taken in the food a secondary intestinal indigestion might result, whereas if fat was removed from the food the child would improve. He thought the food should be regulated according to stool findings and in all conditions where the disease had progressed to the point of checking the lymphatic system, fats should be withdrawn and their place supplied by carbohydrates.

Dr. Dennett of New York wished to know if postmortem any of his cases showed lung lesions.

Dr. Johnson of Grand Rapids thought it unwise to say that because fats appeared in the stools an obstruction had occurred. He thought that without question in conditions where the liver was involved there would be poor fat absorption so that it would be unwise to argue backward from that to a diagnosis of tuberculosis of the glands.

Dr. Pisek of New York thought that children suffering from malnutrition would also show poor absorption of fats, and their reduction would improve the condition of the child.

Dr. Talbot in closing said that only two cases came to autopsy and they showed rather remarkable findings, normal lungs, and unmistakably tuberculous glands. He said that this study was not of metablism, but of clinical observations coming in routine hospital service. In making the usual examinations of the stools they happened to see the fat coming through in the stools of many cases, notably in all jaundice cases, but they did also find it in these cases of tuberculous peritonitis. He called attention to the fact that many tuberculous children were fed cod liver oil and olive oil and said that in the light of these examinations he thought it bad practice.

The Caloric Requirements of Bottle-Fed Infants.—By Dr. Roger H. Dennett of New York. He said that the percentage designation of food proportions was misleading, it being better to get into the habit of thinking in calories. He said that while caloric needs differed in normal, atrophic and very fat babies, still careful record keeping would enable one to determine the minimum number of calories on which a baby would gain in weight. He showed a number of charts from his practice showing that approximately 120 calories were the average food requirement.

Dr. Talbot of Boston thought that the variation in the food properties of cow's milk discounted to a certain extent the findings shown by such charts. He thought that both percentage and caloric measures should be used in determining the proper amount of food, but that in every case the needs of the particular infant should be the guide. He said that in his practice he had fed as high as 160 calories per kilogram, while on the other hand he had had an infant thrive on 80 or less.

Dr. Douglas of Detroit said that these findings were not applicable to babies that had been damaged by feeding, and urged the necessity of explaining diet requirements to mothers to get their cooperation in feeding properly and in not too hastily changing foods.

Dr. Chapin of New York said that mere calories had nothing to do with the feeding of the child, that 120 calories of something that would produce no growth at all could be given. Therefore growth was the criterion.

Dr. Dennett in closing said that the idea he intended to convey was the addition of caloric measurements to percentages. He thought that the fat content in different samples of cow's milk would be so small that when divided as it was in infant feeding there would be nothing that could really be taken into consideration. One of the charts showed a baby weighing but six pounds at two and one-half months of age, which had come up nicely under this method. He thought that there would be few whose nutrition would be below this point.

The Relation of the Infant Welfare Movement to Pediatrics.—Dr. Thomas B. Cooley of Detroit showed the scope and importance of this movement in relation to preventive medicine. He considered its most important development the education of mothers, prospective mothers, and young girls in the care of themselves and children. He called attention to the grave danger of the work being taken over too soon by the health departments before standards had been set or dignity given it. His plea was for the cooperation of pediatrists and the absolute necessity for their affiliation with the welfare associations.

Dr. Pisek of New York said that he had been actively engaged in this work in New York. He thought that for some time it should be in the hands of private philanthropists, and that with the cooperation of social workers and pediatrists the work could be mapped out in a way to be carried on successfully by the health boards when the public had been educated up to it.

Dr. Hill of Philadelphia called attention to the "Baby Saving Shows" now going on in Philadelhpia under the direction of the leading pediatrists. He said that the interest shown was remarkable and indicative of possibilities for great good.

Dr. Johnson of Grand Rapids said that since their exhibits and instruction of prospective mothers the mortality of infants had decreased 55 per cent last year from the mortality of the five preceding years.

Dr. Kerr of Brooklyn lamented the fact that the pediatric societies had not the standing they should have, and feared from this report that the health departments would too soon undertake entire supervision of the work.

Dr. Howe of Albany said that the health departments had no desire to undertake the work, save under the guidance of pediatrists, and said that there was far more danger of the pediatrists not taking the interest in it that they should.

Dr. McCleve of California said that the statement in the paper that the milk philanthropy had not been productive of good should not go unchallenged. He said that the feeding was the very first consideration, therefore pure supplies of milk were the first step in child welfare.

Dr. Harrington of Milwaukee said that in their city the work had been started by a social worker in August, 1911, and had proven very successful, showing a decrease in infant mortality in the one district in which it was carried on of over 60 per cent. He said that it had been since put into the hands of a physician with a visiting nurse to look after home conditions. He called attention to the practice of newspapers of giving birth records, thus furnishing patent-food manufacturers with mailing lists for their samples, and thought that if the custom was common the postoffice authorities should look into it. He called particular attention to the necessity of the physician undertaking such work being a sociologist.

Dr. Cooley in closing said that he did not intend to convey the impression that there were few competent pediatrists, but there were too few of any sort who would undertake this work, as had been shown by the inability of the promoters of the work to get them. He said that in his statement that milk philanthropy was a failure he meant that the giving of pure milk, without instructions as to how to keep it clean, how to prepare, and how to administer it, which came under education, had been a failure. He thought that there would be no difficulty in getting pediatrists to agree on a diet for normal children, that when controversy crept in it was in the case of sick infants, and that was a matter for determination in each individual case.

The Value of the Social Service Department to the Children's Dispensary.—Dr. Maurice Ostheimer of Philadelphia read this paper, showing that as a result of their work many conditions deemed incurable by parents had been either cured or greatly improved. He said that within twenty-four hours after a child had been to the dispensary the social service department nurse visited the home to investigate conditions—sanitation, housing, hygiene, food, illness, work, etc. She saw that all the physician's advice and orders were understood and carried out; left diet lists, corrected abuses or bad habits; and sent the child back to the dispensary. If there were other illnesses in the family she referred them to the hospital. If necessary she helped some to sanatoria, or open-air schools, and secured open-air positions for those who needed them. He said that she worked closely with the Children's Home and Aid Society, often securing wetnursing-mothers for babies with inanition. By this plan the mortality, especially during the summer, had been greatly reduced.

Dr. Fussell of Philadelphia called attention to the marvelous results produced by this work in Philadelphia. The particular feature, he said, was the visiting nurse, who looked into all the conditions, and followed up cases, instructing in care and hygiene. He said that no nurse was expected to recommend any measures of treatment, or in any way to interfere with work of the physician, but where she found patients with conditions that needed attention, she saw that they got to the physician, who, in turn, recommended them to the proper department for treatment. He said that the nurse visiting the homes acted just as much in conjunction with the physician as any well trained nurse in private practice would do.

Dr. Miller of Atlantic City said that in his town (and in some others) proprietary food manufacturers kept two nurses in the town to go and instruct mothers in the preparation and use of their foods, and he thought physicians should discourage such practices, as he knew of quite harmful results accruing.

Dr. Douglas of Detroit thought that physicians were not at fault in that matter, nor that medical teachers were at fault, but that the students themselves did not appreciate the importance of infant feeding and that other professors did not impress it upon them.

Dr. Ostheimer in closing merely re-emphasized the point that the chief function of the nurse, after the educational feature, was the reference of cases to the physician, she herself not attempting to give medical advice.

Some Reasons for Surgical Failures in Children.—Dr. LeGrande Kerr of Brooklyn read this paper emphasizing the difference between the understanding of surgical success on the part of the laity and the surgeon. He thought that if more careful examinations were made, more consulation with the pediatrist to determine previous illnesses and physicial conditions the diagnoses would be more exact, therefore results better. He thought that the assistants often hindered more than they helped because they were either too interested, paying more attention to the surgeon than to their own work or not interested enough, or not well trained. He said that the anesthetist, too, was frequently not looked upon as a co-worker, merely as a tool, and that he did not have an opportunity to do the best for the patient possible because he could not adapt the anesthetic to the patient—merely giving what was designated in the quantity desired. He said that until these various procedures, all necessary to surgery, were reconciled and harmonized, results could not be what they should and that parents would not be satisfied with a surgery that did not fully equip a child for normal childhood.

Dr. Neff of Kansas City said that the matter of the child's previous history was important. He said that among his cases operations had been done without his knowledge with indifferent results that could have got along much better if he had been consulted as to the child's general condition and previous illnesses.

Dr. Spinney of New York said that under anesthesia the patient was being given a most potent drug, and that unless this was realized by the physician and the anesthetist and every precaution to have it given just right, and evenly balanced, good results could not be produced. He thought that possibly there was as much danger from toxemia as from cyanosis.

Juvenile Psychasthenia.—Dr. Tom A. Williams of Washington, D. C., read this paper. He showed by the cases cited that psychasthenia was a condition characterized by the presence of obsessions. Contrary to the theory of Janet that it did not occur in children, he had found it in many cases evidenced by morbid fears, mental disorders and day dreaming. Analysis of these cases showed that the psychological mechanism in childhood was the disturbing factor. He traced many analyses of cases in adults to neuroses in childhood. He believed, contrary to Freud, that bodily harm played a more important role than sexual excitement. He cited a case of an adult the cure of which occupied a period of eighteen months, due to wrong education of childhood. He thought that dreams did not play as important a part as had been attributed to them, believing that he could get at all of the conditions which they would show much more quickly and easily by direct methods. Pediatrists did not appreciate the importance of the study of these cases, and from the text books imagined them to be very complicated and difficult, while as a matter of fact they were not. He said that merely a common sense view needed to be taken of them, and a little study of the workings of the child mind, which he said he had found far more easily understood than the adult because they were more frank and open. In the two cases of children cited first he saw them each but once for half an hour and was able to make the diagnosis. The other, the boy of thirteen, was much more difficult, but even in this case he saw him but four times for half-hour intervals. He emphasized the necessity of studying these cases just as one would a disordered stomach, applying the treatment to the individual case.

Dr. Thomas S. Southworth of New York read the report of the executive committee recommending the election of Dr. Henry Dwight Chapin of New York as chairman, Dr. J. M. Miller of Atlantic City, vice-chairman, Dr. Frank C. Neff of Kansas City, Mo., secretary, and Dr. Charles Douglas of Detroit for delegate. Upon motion duly made, seconded, and carried the report was accepted.

Methods of Estimating Kidney Function.—Dr. Richard M. Smith of Boston read this paper showing that the functionating powers of the kidney could be determined by the excretion of salt, protein, and iodine, but that the amount of water eliminated was no criterion to go by. Even in normal individuals, he said, there is a large variance in the quantities of water eliminated. He thought that the elimination of urea was valuable, but on account of the difficulty of determining it it was hardly practical. He had employed the test which, by the introduction of phenolsulphonephthalein into the body, enabled him to determine kidney function and from this knowledge make a differential diagnosis in many obscure cases and often an accurate prognosis.

Influence of Climate on Summer Diarrhea of Infants.—Dr. L. T. Royster of Norfolk, Va., read this paper giving statistics showing the relation of mortality and morbidity curves to heat and humidity curves in some twenty-eight cities of the United States from which he determined that when humidity was great a day or two later will show marked increase in the death rate. He had found, however, that ill effects of heat and humidity in white children were cumulative, so that often deaths during the fall months were attributable to excessive humidity in the early summer months. In negro children he thought that almost invariably the death followed in a day or two after the increase in humidity. He advanced his findings to show that humidity did play a part in the production of these conditions and urged the gathering of more careful statistics than were at present possible.

Dr. Hoobler of New York called attention to the fact that while in individual homes conditions of heat and humidity were not readily changed, in hospitals they might be. In gathering data on ventilation problems he had found that as humidity went up the blood pressure went down which he thought might account for some of the deaths from summer diarrhea.

Dr. Pisek of New York thought that unless heat retention in the infant was understood the troubles of the days preceding the hot spell would multiply. He had found the greatest humidity at three oclock in the morning and after hot waves had placed infants upon substitute diets with marked lessening of gastric disturbances. He thought that the prime factor in reducing mortality was the education of mothers.

Dr. Schwartz of New York said that their death rate frequently went to seventy-one in a single day after a hot wave. He thought that the deaths were due to loss of body moisture because in zones where there are not extremes of heat and cold there is practically no summer diarrhea.

Dr. Rawlings of El Paso, Tex., said that although their humidity was very low, and rainfall but about ten inches during the year, they had a great deal of gastrointestinal disturbance. He thought that they secured best results by removing the children to a higher altitude.

Dr. Hillway of Cincinnati said that the study of summer diarrheas in hospitals, and gathering of such statistics would hardly give a fair estimate of conditions. He thought that visits to tenament homes were necessary to an understanding of the contributing factors. He said that heat produced increased peristalsis and diminution of the functionating power of the stomach, because of the stimulating effect of heat upon the emotions.

Dr. Butterworth of New Orleans said that their greatset humidity was in May and that April, May, and June showed the greatest mortality, although the hottest months were August and September. He said that going farther south he had found freedom from gastric disturbance during the rainy seasons, and that in his practice sending such children to the seashore, where the humidity was even greater, proved beneficial, so that he thought other factors played as important a part as humidity.

Dr. Zahorsky of St. Louis emphasized the necessity of studying morbidity rather than mortality. He thought that the increased death rate during humid periods was due to the fact that many bottle-fed infants are below par and that the heat aggravated the symptoms.

Dr. Duglas of Detroit said that he had been educating mothers to reduce the food about 25 per cent. during the hot periods, giving more cool water to children, with very good results.

Dr. McCleve of California said that except for the narrow strip between the mountains and the ocean the humidity in that State was very low and the heat extreme, but that summer diarrhea was practically unknown. This he attributed to the almost complete outdoor life of the inhabitants.

Dr. Parke of Birmingham thought that the wide variation in symptoms also led to confusion. He said that in London they did not know any such severity of symptoms as was seen in the southern states, therefore their findings could be of little value here.

Dr. Royster in closing the discussion said that he had not contributed this investigation as showing the chief cause of the disorder, but merely to start an investigation as to what part heat and humidity did play. He said that in Phœnix, Arizona, where the average temperature was 108° and the humidity was about four degrees, the mortality was very low—among a population of 20,000 about one a month. He agreed that the work of the German investigators could not be applied in this country because of the different climatic conditions. He thought that radiation had something to do with producing the conditions because children from inland sent out on boats in an almost moribund condition came back at night freshened and better in every way. He said that he had noticed difference in the discharges from year to year: one year watery, the next typically diarrheal, etc.

Effect on Later Development of Severe and Prolonged Illness in Infancy.—Dr. Thomas D. Parke of Birmingham gave a set of skigraphs of the wrists of a series of children showing almost uniform under-development of the bony structure even in children who were taller and heavier than average children of their age. He concluded, however, from his investigation that this condition could not be called uniform because some children showed even advanced bony development.

Exophthalmos in Scorbotus.—Dr. L. R. DeBuys of New Orleans presented photographs and skigraphs of an infant with marked displacement of the left eye outward, forward and downward, swelling of both legs below the tibia, and all the typical indications of scurvy in which a diagnosis of rheumatism had been previously made. He administered antiscorbutic treatment and orange juice with marked improvement. He called attention to the necessity for therapeutic diagnosis in these cases.

Dr. McClanahan of Omaha said that in his practice he saw an average of four cases a year, all coming in from the country, and all of which were variously diagnosed by other physicians. He said that most of his cases presented gingivitis. He had noticed hematuria as a common symptom, which often confused the diagnosis.

Dr. Butterworth of New Orleans called attention to the lack of education in differential diagnosis among physicians which would admit of a diagnosis of rheumatism being made in such cases.

Dr. De Buys said in closing that the English clinicians paid more attention to urine examinations which accounted for the frequency with which they mentioned hematuria as a symptom.

Anesthesia by Pharyngeal Insufflation.—Dr. Frank W. Pinneo of Newark, N. J., said that the elements of ideal anesthesia were quick, tranquil induction, even maintenance, prompt, complete recovery and no sequelæ. He thought that these conditions had not maintained generally on account of the intermittent giving of the anesthetic which was partly due to the fact that in nose and throat surgery the operator and the anesthetist used the same field. By the use of an instrument which he demonstrated the anesthetic could be given through a mouth tube, a nasal tube, or nasal catheter, according to the requirements of the case. He advised a sequence of anesthetics to produce best results and an even temperature of from 84° to 87° which with the heating device of the apparatus could easily be maintained.

Dr. Gwathmey of New York said that since the practice of heating ether for administration much better results had been obtained. He thought that shock in children was almost invariably due to loss of body heat. He thought that for children the chloroform and ether sequence was best and said that very nice results might be obtained by starting to anesthetize during the child's nap, so that it would not struggle against the anesthetic.

Dr. Woolsey of New York said that the extreme susceptibility of children to toxins was an important consideration. He thought that many bad results from either anesthesia could be attributed to the fact that its action produced an obstruction in the thorax so that the child was not thoroughly anesthetized or the anesthesia evenly maintained.

Dr. Pinneo in closing said that he did not advocate nitrous oxide in children on account of the small air spaces. He thought that chloroform in sequence did not show the mortality statistics that plain chloroform did, so that he considered it the anesthesia of choice in children.

The Relationship Between Tuberculous Infection in the Child and Clincial Tuberculosis in the Adult.—Dr. F. M. Pottenger of Monrovia, Cal., considered this a lymphatic disease present in nearly all children before the fifteenth year. Even where it was discovered, he believed that the clinical symptoms presenting in adults could be directly attributed to old lesions of childhood. He thought that early infection afforded quite an immunity against further inoculation. He believed that the early recognition of its presence and proper handling of tuberculous manifestations in children offered the best preventive yet known against tuberculosis of adults, and for the ultimate eradication of the disease. He thought that tuberculin testing of children should be far more common and that all giving a reaction should be most carefully watched, if not put upon protective treatment.

Dr. An Ende of New York said that in his work he used the Moro test because it was simple. He said that where he found a reaction he put the child upon a formula of one part quinine and one fifth iodoform adding creosote and other remedies as indicated in individual cases and had had good results.

Dr. Knope of New York thought that the Moro test did not amount to much, and said he did not think that any of the tuberculin tests were very accurate. He said that in children over five there was almost universal reaction to von Pirquet, which would indicate that approximately all children did at some time have tuberculosis. He thought that the intensity of the reaction was a valuable diagnostic aid. Where it was violent, the disease was active, and where it was less active it was latent. He emphasized the desirability for constant examination of school children and thought open air schools should be the rule rather than the exception.

Dr. Von Ruck of Asheville, N. C., said that few children of tuberculous parents seen in their institution did not show evidence of infection. He said that they treated chiefly with tuberculin but were soon to introduce a vaccine which, if it proved as successful as the tests had, would present an immunization against tuberculosis as positive as the vaccine virus against smallpox.

Dr. Hanse of Lakewood, N. J., thought the leucocyte count an aid in diagnosis. He thought that tuberculous children usually showed a high percentage of mononuclear cells. He said that even where tuberculin therapeusis was used the other treatment and hygiene should not be overlooked.

Dr. Ritter of Chicago thought that in infants of from six months to two years the Moro test was by far the best. From three to ten years he used the von Pirquet and in older people the subcutaneous. He said that a successful tuberculin should represent all of the antibodies of the disease, because it was not known which were present in individual cases.

Dr. Stoll of Hartford, Conn., said that he used tuberculin both diagnostically and therapeutically. He thought that the delicate child which did not react should have just as much attention as the robust child which did, because he presented a better field for infection upon exposure.

Dr. Pottenger in closing said that the most important point in the treatment was the early diagnosis and that any method which substantiated it should be used. He thought that no one should use but one test, because patients who responded to one test would not to another, so that he used several tests in suspected cases if the first one gave a negative reaction. He emphasized the desirability of familiarizing one's self with one tuberculin and using it, rather than attempting to use several and doing it indifferently.

An Automatic Device for Reading Systolic and Diastolic Blood Pressures in Children.—Dr. B. Raymond Hoobler of New York presented this device which by mechanical means gave the correct blood pressure, without the danger of the physician being misled, as he often was, with the use of his fingers or ears. He said that great difficulty had been experienced in reading blood pressure in children by means of tactile pressure over the radial artery or by means of auscultation over the brachial artery. The device which he presented consisted of a double cuff one to fit below and the other above the elbow. The lower cuff was attached to a modification of a Fedde's pith-ball indicator, so that when pulsation was permitted to pass under the upper cuff it was recorded by means of the lower cuff and was shown by the oscillation of the pith ball. He said that in very small children the leg could be used as well as the arm, by merely calculating the 10 per cent. difference normally present in limb pressure. Through the use of his instrument he said the findings were standardized and that the readings would be found to approximate very closely those of the Erlanger sphygmomanometer.

Effect of Cold Air on the Blood Pressure of Tuberculous Children.—Dr. B. Raymond Hoobler of New York read this paper, also showing that from his tabulated cases tuberculous children carried a very low pressure, but by removal to cool out-door air it was raised ten, twenty, or thirty degrees. He thought that this furnished additional argument in favor of open-air treatment. He said that the more advanced the case the lower the blood pressure fell and the more increased it became upon removal into open air.

Dr. Pottenger of Monrovia, Cal., asked if the doctor had taken pressure in tuberculous children other than pulmonary. He wished to know if other than the pulmonary cases showed the same reduction in blood pressure. He said that if the lowered pressure was due to toxins then the non-pulmonary should show the same condition. He believed that the lowered pressure might be attributed to the fact that the diaphragm was interfered with so that it did not act normally, and he thought that this would also account for the pallor of tuberculous children, many of whom are not anemic. He thought that the effect of cold air was physical and that no conclusions could be drawn from it. He said that well children might show the same rise in blood pressure.

Dr. Ritter of Chicago said that he had recently reported 400 cases of analysis of blood pressure in tuberculous children and adults and asked the doctor if he had compared the pressure taken sitting, standing and reclining. He said that in his cases he found that where the blood pressure was high in the reclining position the pulse was rapid, there being a difference of ten points between the three positions in blood pressure and six points between the pulse rate in the three positions.

Dr. Hoobler in closing the discussion said that he had presented only pulmonary cases and that the blood pressure had all been taken in bed. He said that this tests on well children showed that the rise in blood pressure when they were taken into the open air was not nearly so great as in the tuberculous.

The Diagnosis of Enlarged Bronchial Glands.—Dr. Henry F. Stoll of Hartford, Conn., read this paper and said that in his experience there were often no symptoms by which the condition could be diagnosed. Any of the symptoms might be present in a case, or all might be absent, but he considered the interscapular whispered bronchophony the most universal and the most valuable sign. He thought, however, that even here there was possibility of error because this might be caused by a dilated left auricle or an aneurysm of the aortic arch. He had found that paraverebral dullness was often present when neither vertebral, sternal, or parasternal dullness could be detected. He emphasized the necessity for extremely light percussion or the vibration would mislead its interpretation. He said that the x-ray usually presented a shadow in the first and second right interspaces to the right of vertebræ.

Dr. Ritter of Chicago wished to know if the doctor placed any dependence upon the Smith sign.

Dr. Pottenger of Monrovia, Cal., thought that enlarged glands were more common than supposed. He said that while he had always held to the opinion that infection took place in the air passages, recent writings showed that if the gland was traced back to the part of the lung it drained a definite focus would be shown. He said that unless one percussed very lightly he soon lost his perception for slight sounds and so was less likely to interpret indistinct findings.

Dr. Stoll in closing said that the Smith sign seemed to occur so often in in healthy childern of stocky build with short necks that he did not use it as a diagnostic feature. He said that in adults intrathoracic goiter would give the dullness, weakness, and vasomotor instability that was present in tuberculosis so that the differential diagnosis was hard to make. He said he could not say what sized gland would produce the first sign of dullness but he had noticed that often the dullness seemed to be in excess of the enlargement shown by the x-ray.

The Hypodermic Injection of Hematinics in the Treatment of Anemia in Children, with Report of Cases.—Dr. H. Lowenburg of Philadelphia gave his results in a number of cases in which he had used a combination of hematinics upon which he based his opinion that results depended upon the character of the preparation. He said that citrate of iron did not always produce uniform results, that arsenic sometimes produced nausea so that the preparation should be varied according to the needs of the individual. He laid stress upon the need for absolute asepsis and for injecting the fluid into the deep tissue to avoid pain and swelling. He concluded from his experiments that small doses gave as beneficial results as large and that the toxic effect was noticed almost immediately.

Dr. Zahorsky of St. Louis had noticed frequent vomiting when a dose of ¾ of a grain was given so that he had given not more than ¼ to ½ grain to young infants. He had also had rise in temperature to 99° or 102° in his cases but had noticed no especial harm from either of these symptoms.

A Demonstration of a Graphic Milk Chart.—Dr. Charles Henry Smith of New York demonstrated a chart by means of which the caloric and percentage values of foods could be determined for any milk modification. He said that the chart was based on 4 per cent. top milk, the straight lines of the chart indicating sugar and protein values of the food, dotted lines the calories. He had worked out the chart from his own practice and presented it as a means for obviating lengthy figuring to find out what milk modifications to make for the needs of each case.

RETROSPECT OF CURRENT PEDIATRIC LITERATURE.

Orthopedic Surgery

Under the Charge of

JAMES K. YOUNG, M. D.

Professor Orthopedic Surgery, Philadelphia Polyclinic; Clinical Professor Orthopedic Surgery, Woman's Med. College, Pa.

Recent Advances in Orthopedic Surgery.—By James K. Young. *The Jour. of the Med. Soc. of N. J.*, Mar., 1912. The author first discusses the recent advances made in the study of tuberculosis. Diagnostic puncture of tuberculous abscesses determines the kind of micro-organisms present, if any, and aids in determining the operation necessary. Four diagnostic tuberculin tests have been introduced within the last five years; the subcutaneous injection of tuberculin, the Calmette conjunctional test, the von Pirquet skin test, and the Moro skin test with tuberculin ointment. The technic of each is described by the author. Treves operation for psoas abscess has been revived. The author modifies it and applies it only in abscesses in children.

Vaccine therapy has wrought wonders in suitable cases, e. g. mixed infection of tubercular abscesses.

The x-ray has become almost indispensable to the orthopedic surgeon.

The advances made in the treatment of infantile paralysis (anterior poliomyelitis), consist in nerve anastomosis, tendon transplantations, introduction of silk ligatures and tendons, and arthrodeses.

Robert Jones of Liverpool has perfected a technic which makes absolutely safe the operation upon the knee joint.

The use of the Wassermann test and of salvarsan are of advantage in orthopedic surgery.

Becks, bismuth paste has greatly improved the treatment of sinuses, but it should be applied to selected cases only.

Study of the displacement of the socio-iliac syncondrosis has cleared up the diagnosis of many cases of so-called lumbago and sciatica.

Many cases of arthritis deformus have been found to be due to lesions of tonsils, respiratory tract, alimentary and genito-urinary tracts. The author divides arthritis deformans into four divisions; the traumatic, the pathological, the pathogenic, and the metabolic and toxic.

Treatment of old Intra-Capsular Fracture of the Hip Joint Illustrated.—By E. S. Hatch. *New Orleans Med. and Surg. Jour.*, May, 1912. Treatment of unimpacted intra-capsular fracture by apparatus rarely results in good union of the fragments. Open operation is contra-indicated in patients of advanced age and in those suffering with chronic lung and kidney diseases. Moderate limp and slight pain do not warrant an operation. Operation is indicated in those patients of young or middle age, having good general health and being very much or completely disabled, and then only after ordinary means of treatment have failed.

The author uses the method suggested by Nicoloysen, whereby a steel wire nail is driven through the neck and head of the femur into the acetabulum. The limb and pelvis are dressed in plaster. The nail is removed at the end of three or four weeks. The plaster cast is worn for eight or ten weeks.

The author reports three cases treated in this manner with good results.

A Method of Treatment for Habitual Congenital Dislocation of the Patellae.—By Geo. Robertson. Surg., *Gyn., and Obstetrics*, April, 1912. The case presented was that of a woman, aged forty years, who had congenital outward dislocation of both patellæ. The condition was due to defective development of the external cardyle of the femur which presented a deficient trochlea ridge. There co-existed genu valgum and varicosity of the saphenous vein.

The following operation was devised and performed. A semilunar skin flap with the conversity inward was dissected from the inner and posterior aspect of the knee. The semitendinosus tendon was divided near its insertion. An inner strip of the ligamentum patellæ was divided from its tibial insertion and carried inward and sutured to the semitendinosus tendons. The two were also sutured to the inner capsule of the knee, and the capsule was plicated. The saphenous veins were ligated. The skin wound was closed. The leg was extended for four weeks on a posteroir splint.

The result of the operation has been excellent.

Mechanical Efficiency.—By Jas. T. Watkins. *Cal. State Jour. of Med.*, Jan., 1912. The human body, resembles a delicate machine whose efficiency is at its maximum when there is a minimum of friction, when each part is performing its entire function with the least expenditure of energy. And the parts of this human machine are so correlated that a strain of any one part affects the whole machine. Certain things are essential to this condition of efficiency or perfect health.

The upright attitude of greatest efficiency is that in which the individual stands with head erect, chin in, shoulders thrown back, chest raised, abdomen flat, spine slightly concave forward in the region of the thorax and slightly concave backwards in the lumbar region with the pelvis tilted to an angle of 60 degrees with the horizon. In this posture, the heart and the lungs have the most room and the abdominal viscera are supported in part upon ledges or shelves, and in part by the anterior abdominal wall. Deviations from this normal posture are due to improper function or deformity of any of the parts concerned; and,in turn, cause deformity of other parts, for deformity is the result of improper function.

The following facts all have a direct bearing in these general principles. The erect posture should be maintained at all times, sitting and standing. Weights, including the weight of clothes, are supported best at the root of the neck, with the least disturbance to the poise of the individual. Nature intended that women should have the same type of respiration as men, namely abdominal. Corsets limit or prevent abdominal breathing, splint and weaken the abdominal muscles which leads to visceroptosis. The least harmful type of corset is that which is loose at its upper border, does not reduce the waist more than one inch, is straight in front and follows the curve of the body behind, laces snug about the pelvis and maintains its position without the aid of straps and garters. A proper shoe has an insole that corresponds with the imprint of the foot. Its inner border is higher than the outer. It has a short shank, a broad heel well advanced under the instep. The proper hygiene of the foot is most important in maintaining the proper posture of the body.

Tuberculosis in Infancy and Childhood.—By Henry Koplik, *Johns Hop. Hosp. Bul.*, Apr. 1912. Tuberculosis is startlingly prevalent among children, and presents features very different from the same disease in adults. Infants and children are not predisposed to tuberculosis any more than to other contagious diseases, but they are more exposed to infection than are adults. The disease can be congenital, tubercle bacilli have been found in the maternal placenta, and in various organs of the fetus. Its incidence is rare during the first few months of life, but it steadily increases up to the fourteenth year when the percentage of tuberculosis children is the largest. The percentage then decreases to adult life.

Infection is by way of the air passages and the digestive tract, and all authorities are agreed the human subject is the main source from which emanates the infection. Tuberculosis derived from tuberculous cows' milk is a negligible factor.

A striking peculiarity of this disease in childhood is the preponderating involvement of the lymph glands, and especially of the bronchial nodes. But in the latter the primary lesion is in the lungs. Tuberculous meningitis is frequent in childhood and continues in the lungs are infrequent. The course of the tuberculous process under the fifth year of life is quite acute and the illness is short, and during this period of life the most common form of tuberculosis is miliary, or meningitic.

In later childhood it is often difficult to differentiate between typhoid fever and acute miliary tuberculosis as both the von Pirquet and the Widal reaction fail in many cases.

Pulmonary tuberculosis also usually runs a rapid course, except in later childhood, simulating, at first, an ordinary broncho-pneumonia.

Many pleurisis in childhood are tuberculous, probably about 50 percent. The fluid from the chest shows 90 to 100 percent of the cells to be pymphocytes, with an absence of bacteria.

The author thinks the peritonitic form of the disease is not so common as other forms in infancy and childhood.

Scrofulosis is a distinct clinical tuberculous entity perculiar to infancy and childhood; adenitis, catarrhal states of the conjunctive, nose and respiratory tract, affections of the bones, eruptions on the skin, with anemia and often cyclic albuminuria. It is the lymphatic form of the disease.

The diagnosis of tuberculosis has become much easier within the past decade through our knowledge of the unity of the various pathological forms of the disease and by employment of the various recent tuberculin reactions. The von Pirquet test is the best for bedside use. If this leaves the diagnosis doubtful, the subcutaneous injection (Stick method of Hamburger) may be used cautiously. The latter may cause an exacerbation in the local symptoms of the disease. The x-ray is useful in diagnosing tuberculosis of bones and enlargement of bronchial lymph nodes.

The prognosis of tuberculous in infancy and early childhood is bad on account of its tendency to spread and become general miliary. The older the child the better the prognosis. The localized glandular and bone forms have a tendency to heal beyond the seventh year of life.

Prophylaxis must be along the line of separation of infants and children from the vicinity of infection, and from parents, if necessary.

Diseases of the Nervous System in Children

Under the Charge of

ARTHUR WILLARD FAIRBANKS, A. M., M. D.
First Assistant Physician, Department for Nervous Diseases, Boston City Hospital;
Assistant Physician for Nervous Diseases, Boston Children's Hospital;
Consulting Physician to the Perkins Institution for the Blind
and the Boston Children's Aid Society.

Child Development.—Another book on individual child study has appeared in the publication by Professor Dearborn of Tuft's College of data on the Moto-Sensory Development of a three year old child. This record of the first three years of motor and sensory progress of a child adds another to the interesting series of publications on infantile evolution that have appeared in constantly increasing numbers since the famous work of Preyer appeared.

While all such individual child-studies are to be taken with some reservation as an index of the average evolution from birth through the formative years of life, both on account of the natural variance among different children, and also on account of the varying interpretation of the facts observed by the observers, nevertheless it is only by the slow accumulation of the statistics of the evolution of many different individual children that ultimately an approximately reliable average or index may be obtained by which we may gauge the evolution of the child in general. The total number of instances from which such an index may be obtained, must of necessity be very large, therefore every additional instance, added to our data should be welcomed.

There are so many factors that influence the mental and physical growth of the child, that vary in each individual case, that it is impossible to adequately weigh their relative value in each instance, in order to account for the variance in the development of children, noticeable in the data contained in the many studies now available.

These factors, granting a fairly normal physical and mental endowment at birth are mainly environmental, and commence to exert their influence from the moment of birth, and thence forward acquire increasing importance the older the child grows. Each child finds itself, at its entrance into life, in the midst of an environment essentially different in either gross or in subtle ways, from that surrounding every other child. Each individual environment favors the evolution of some of the faculties, and retards or prevents the development of others. No child can develop as an independent ego. Each is to a certain extent that which his environment makes him.

Thus no two studies of children, even when the children are apparently placed under identical conditions, can or will be alike, for very subtle factors in the environment are potent in their influence on the child, and the same factors will react on one child differently than on another. It is evident therefore that when we study the evolution of one individual and witness the unfolding of mental and physical ability, we form a certain standard in our minds that subconsciously at least, seems to us to be the normal. When however, we come to the equally minute and painstaking study of another child, these standards conflict and considerable discrepancies become evident, both in the advancement and in the retardation exhibited by the two children. This confusing fact must have made itself manifest to all who have concerned themselves with this phase of child-study.

The case of the little girl studied by Prof. Dearborn naturally forms no exception to this rule. The truth is that all these records of child development must be studied in their entirety, and the picture of the total evolution of the individual be kept in mind, rather than the period at which this or that faculty in particular became developed. In this way a broad conception of the general development of children will be formed, allowance for individual variation of environmental influences can be made, and the studies of the evolution of many individual children can be correlated and brought into practical relationship with one another. No one or two facts should be called from such an individual study or record, and be brought into the light of criticism. The book should be read by all who are interested in the study of child development. Enhancing the interest and value of the data are the author's comments on the interpretation of the child's reaction to her environment, and the physiological reasons for the same. These comments by a trained physiologist are of especial interest because in all such studies the greatest source of error lies in the individual interpretation of the facts observed. Here we find wide discrepancies throughout the entire literature of the subject. This interpretation depends naturally upon the particular point of view from which he approaches his subject. We would expect a somewhat different interpretation of the facts from a physiologist than from a psychologist. We would not be surprised to find the former laying rather greater stress on the physiological motor mechanism reflex and voluntary, than upon acts based upon psychical associations, which would be particularly emphasized by the psychologist. Nothing has so complicated a study in itself at best, sufficiently complex, so much as the attempts at individual interpretation of the acts observed in the children studied. While we see in this particular study some tendency to physiological bias, on the whole it is especially free from arbitrary conclusions and rigid definitions. I have been interested for some years, in data on child development, from the standpoint of practical clinical utility and I hope in the future to be able to show of what value it may prove, and how much we are indebted to the patient observation and indefatigable collation of data, manifested in the many studies now available, and to which this one, by Dr. Dearborn is so acceptable on addition.

BOOK REVIEW.

Heredity and Society, By William Cecil Dampier Whetham, M. A., F. R. S. Fellow and Tutor of Trinity College, Cambridge, and Catherine Durning Whetham, his wife. Price $2.00 net. Longmans, Green, & Co., 39 Paternoster Row, London, New York, Bombay, and Calcutta, 1912.

This book is a valuable work on the theories and applications of heredity. The central and focal chapters have discussed those problems of "race suicide" and "eugenics" which are just now being recognized as of burning importance, especially to the Occidental races. These matters are not lugged in by the heels, but led up to naturally by way of chapters on "Variation and Heredity" "Natural Selection," and "The Biological influences of Religion." A few years ago Lamarck taught that we had only to improve one generation by more healthy surroundings, or by better education and, by the mere action of heredity, the next generation would begin on a higher level of natural endowments than its predecessor. This theory inspired much of the educational and philanthropic zeal which marked the nineteenth century. But even half a century ago Darwin led the way to an increasing doubt among genuine students of science as to whether "characters acquired during life by the action of the environment are inherited at all by the offspring." Such students had begun to absorb themselves in the methods of practical breeders of cattle, and had perceived that the mere improvement of environment was of relative unimportance, "compared with the transcendent power of selective breeding."

Now, natural selections may be trusted to do its work for the human race if allowed a clear course. Strength and beauty of body and mind are sure to have the advantage in the long run, when it comes to a choice of mates, but under current conditions, in civilized countries, natural selection no longer has anything like fair play. To maintain normal conditions, while "an artificial selection is introduced by a voluntary restriction of the birthrate," is impossible.

But even if the out-put of children continues to decrease in quantity, even if we must look to see the native stock submerged in point of number in the relatively near future, there remains a safe guard or break which may be used for the preservation of human if not racial quality that of "selective breeding," or eugenics. Such questions are to be studied, for example, as whether the crossing of a Slav and a Yankee produces good results in a generation, and, if so whether the racial quality will be improved or not by further crossing. And, of course, the prevention of breeding by the diseased or the feeble-minded is of parmount importance. All these subjects are presented compactly and intelligibly in the present volume. Of especial interest is the chapter on "Heredity and Politics."

Sex Hygiene for the Male and what to say to the Boy, by G. Frank Lydston, M. D. Professor of Genito Urinary Surgery and Syphilology and Medical Department, State University of Illinois. Delegate from the U.S. Government to the Congress for the Prevention of Infectious Diseases, Brussels, Belgium. Member of Authors' Society, London, England. Author of Diseases of Society. The Blood of the Fathers, etc. Price $2.25, postage prepaid. Cloth bound, 300 pages, 24 illustrations. The Riverton Press, 626 S. Clark Street, Chicago.

The need of a popular treatise on sexual hygiene, which should be at once authoritive and free from cant and quack suggestions, has long been felt by phsicians, teachers and more particularly by progressive laymen who recognize the value of instruction of youth in such matters. This want is more than filled by Lydston's "Sex Hygiene," which is a pioneer work.

There is no work extant on the subject written by any authority. The field has thus far been monopolized by strong-minded ladies whose knowledge of the subject is limited. quacks whose purpose is as evil as their ignorance is profound, and clergyman whose ambition to be of use to humanity is sincere, but who are seriously handicapped by lack of familiarity with the subject.

Lydston's Sex Hygiene is based on the premise that sound sex health resolves around sound general health. He therefore has presented chapters on Physical Training and Muscle Building which alone are worth the price of the book. The author has given the subject of physical training most through study for many years. Viewed from any angle, the book is the most comprehensive dissertation on the subject of which it treats that has ever appeared. Teacher and physician alike will find the book of great service in his work. The parent who wishes to learn what to say to the boy will find it invaluable.

Autobiography of a baby, by Thomas L. Bradford, M. D. New revised and enlarged edition. Philadelphia, David McKay, Publisher, 604-608 S. Washington Square. 1912.

This little booklet "Autobiography of a Baby" should be in the hands of every young mother in the country. It is interesting, well written and contains information that every baby would appreciate its mother's knowing. It tells a story of the baby's trials and tribulations and ends with an appendix on food and feeding, with instructions for the preparation of various formula for modified milk, barley water, lime water, beef tea, etc.

Medical Gymnastics and Massage for the treatment of disease, Deformity and Injury. By Fred. F. Middleweek, L. R. C. P., L. R. C. S. Ed. Director of Mechano-Therapeutics and Massage, West End Hospital for Nervous Diseases. With an introduction by Dr. J. Arvedson, Stockholm, price 65 cts. London, John Bale, Sons & Danielsson, Ltd. Oxford House, 83-91, Great Titchfield Street, Oxford Street, W 1912.

The author's aim in compiling these elementary exercises was with the intention of assisting general practitioners of medicine who are without access to a properly equiped medical gymnasium and who are alive to the fact that such exercises as outlined in this little booklet have great remedial and beneficial influences upon certain diseased conditions. Herein will be found succinct, clear and concise instructions for the administration of medical gymnastics and massage for the treatment of diseases, deformity and injury. The author gives complete instructions for prescribing exercises, taking into consideration the patient's age, strength and sex. It is a little volume that should be highly endorsed, and as such we heartily commend it.

The Montessori Method, by Maria Montessori. Translated from the Italian by Anne E. George, with an introduction by Professor Henry W. Holmes of Harvard University. With 32 illustrations from photographs. Second Edition. Cloth. Price $1.75. New York, Frederick A. Stokes Company 1912.

The Montessori Method is scientific Pedagogy as applied to the education of children. Dr. Maria Montessori's methods, as practiced in Rome, Paris, New York and elsewhere, have created a sensation in the educational world, and will, perhaps, revolutionize child education. This book is an authorized translation of her Italian work, giving a full and inspired exposition of her ideas, methods and materials, with important new matter by Dr. Montessori.

Among the foundation stones of the system are the development of individuality in the child in ways quite different from the usual methods, and the careful training of the senses as a basis for future mental associations. Children of four have learned to write in six weeks. When Montessori's pupils are transferred to the graded schools, they are better prepared in the required subjects than older pupils of the regular system, and have in addition a poise, a self-control, an accuracy and an initative which fit them for rapid advancement. Nothing like a conception of the method can be gained except from the book itself. Yet, it may be said that the system is the product of years of scientific experiment, that it is based not on abstract theories, but on a study of the nature of the individual child, and that its purpose is to devote self-dependence and to encourage the growth of strong complete human beings, physically, mentally and morally.

PEDIATRICS

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EDITORIAL

DEGENERACY, ALCOHOL AND NARCOTICS.

A paper of more than ordinary strength and of unusual interest to the student of eugenics, was presented before the American Medical Society for the study of alcohol and narcotics atthe Atlantic City meeting on June 3rd. The paper was read by Dr. F. A. MacNicoll, of New York City, Vice President of the Society.

Mainly because of the appalling increase in the use of narcotics and alcohol, Dr. MacNicholl declared that "A Wave of degeneracy is sweeping the land—a degeneracy so appalling in magnitude that it staggers the mind and threatens to destroy this republic, numbering more victims than have been slain in all the wars in all the eqidemics of acute diseases that have swept the country within the past two hundred years.

"The application of modern scientific methods has reduced the mortality from acute diseases such as typhoid, yellow fever, and the plague. The sources and the carriers of these infections have been discovered. By abolishing the sources and exterminating the fly, the mosquito and the rat, the average length of life has been increased. With what marked contrast do we deal with alcohol, that most potent source and carrier of chronic disease?

"Degeneracy is shown in the increasing rate of mortality resulting from the spread of chronic diseases. Within thirty years the mortality from chronic diseases has doubled, and today chronic disorders of the lungs, kidneys, heart and other organs, are responsible for more than half the deaths.

"A study of the United States Census shows that within a period of fifty-three years the population of the U. S. increased three hundred and thirty per cent, while the number of insane and feeble-minded increased nine hundred and fifty-five per centum. This shows a net increase in the rate per million of two hundred and ninety-one per cent.

"During the last twenty years there has been an increase in the mortality from hemorrhage in the brain of one hundred per centum, kidney diseases, one hundred and seventeen per centum; diseases of the heart and circulation, three hundred and seventy-eight per centum, cancer, four hundred and thirty-six per centum; diabetis, seven hundred and thirty-eight per centum. The slaughter of the race accentuated when we recall the fact that one in every seven deaths is due to tuberculosis; and that one in every twenty of the population will die of cancer.

DETERIORATING AGENCIES

While heredity and environment, according to Dr. Buchanan writing in Southern Medical Journal may account for a large increase of defectives, it does not account for it all. There are certain deteriorating agencies that are being extensively used among all classes that aid in developing nervous instability. Chief of these are alcoholic drinks and toxic poisons. The immediate and direct effects of alcohol, morphine and cocaine are often apparent, and a striking example is the use of cocaine by negroes, which would ruin the race in a few years if the sale were unrestricted. The effect of the milder drugs are not so manifest, but all, in the end, have a tendency to produce a neurotic diathesis. Accurate statistics on this subject are difficult to obtain, because there are so many cases where it is impossible to get reliable histories, but the report of the New York Lunacy Commission of 1909 gives alcohol as a cause of insanity in 46 per cent of the admissions to the New York hospitals, and reports of the hospitals of other states show large percentages of neuroses due to alcohol and narcotics.

Perhaps a more general awakening to this danger than any other is being aroused all over the country, and prohibitory laws to prevent and restrict their sale have been enacted by almost every state of the Union.

Another thought in our development is to be considered, for while improved environment has given the less capable opportunity to live, and this class, being prolific, are multiplying at a rapid rate, unfortunately the contrary has been the result in the more capable who, for personal and social reasons, are multiplying at a less rate, and we hear much about race suicide.

Another cause that makes up the difference between yesterday and to-day is that the strenuous life has come all but too soon. Too much demand has been made upon the brain and nervous system and not enough attention has been given to strengthening the nervous organization. The maddening rush, financially, politically and socially, as well as the expansion of knowledge, has been in advance of the capacity of the brain, and in consequence we are rapidly developing a nervous instability, producing what we term the neuropathic make-up.

ELEMENTS OF DECAY IN AMERICAN CIVILIZATION.

"Among the early settlers of the country there was an average in excess of eight children to a family; at the present time fifty-eight and seven-tenths of native white women in the United States who have been married over ten years and less than twenty years, have had one, or two children, and only nine and two-tenths have more than five children. One out of every six of these women are childless.

"During the past five years the birth rate in the United States has fallen off thirty-three and one-third per centum; this means the loss of a million babies a year. Let this degeneracy continue at the same rate for one hundred years and there will not be a native-born child five years old in the United States.

"A hundred different intermediate agencies may contribute to the undoing of the race, but back of them all stands,alcohol as the chief degenerate factor. Statistics compiled by the leading insurance companies, and presented by Sir T. P. Whitaker in the report of the British Parliament, show that of every one thousand deaths among the population at large, four hundred and forty are due to alcohol. This would mean a mortality from alcohol in the United States of six hundred and eighty thousand a year.

"The great burden of drink is not borne by the drinker but by the drinker's children. The germ cell that is to be evolved into another being is the most highly organized of all the cells in the body. In its protoplasm lies the material and pattern of the perfected organism. Should such poison or alcohol lessen the nutrition of the cell or impair the quality of the protoplasmic material and deface the pattern, these shortcomings and defects would be manifested in the subsequent stages of development. A defective germ cell cannot evolve a normal body; this is the reason that we find a large percentage of functional and organic diseases among the children of drinking parents. Among school children in New York City sixty-two per centum are the children of drinking parents; and ninety-one per centum of these children of drinking parents suffer from some functional or organic disease. In one institution for the treatment of physical defectives a recent study shows that every patient is the child of drinking parents.

"One-third of the school children in New York City are mentally deficient. If this percentage holds good over the entire country, there are seven millions of children of a school age that are mentally deficient, and less than sixty-seven thousand of these are free from hereditary alcohol taint. A nation half diseased and half well cannot live; but here we have three-fifths of the rising generation mentally and physically diseased.

"The Great White Plague has not lost its power to destroy 75 per cent. of tuberculous children are the children of drinking parents.

"Cancer bears a relation to alcohol that need not be mistaken. Among the great total abstaining races of Africa, Asia and Iceland, there is a rarety of total absence of cancer, while in the great beer, wine and spirit drinking countries of Europe, there has been a steadily increasing mortality from cancer.

"In England a few years ago, of twelve thousand men examined at Manchester, nine thousand were rejected as physically unfit for army service. Dr. Bollinger estimates that half of the young men of Germany between eighteen and twenty-two years of age are incapable of bearing arms. Not long since a call was issued for young physicians to enter the United States army. Eighty percentum of those examined were rejected as physically unfit. When four-fifths of the most representative men in America are pronounced unfit for war, what shall we say to their fitness to father the next generation?

"What is the remedy? Before the germ of Ebenth was discovered we might with impunity drink infected water and milk and blame the results to an inscrutable act of Providence; but when the bacillus of typhoid was discovered, we recognized infected water and milk as dangers to the community. The time was when alcohol was received as a benefit to the race, but the invention of instruments of precision, the application of better methods of examination has revolutionized our attitude to alcohol, but as a poison. Boards of Health armed with police power of the State eradicate the carriers of typhoid and quarantine the victims, but alcohol, a thousand times more destructive to public health than typhoid fever, continues to destroy. Alcoholic degeneracy is the most important sanitary question before the country, and yet the health authorities do not take action, as alcohol is entrenched in politics. Leaders in politics dare not act, as their political destiny lies in the hands of the agents of the liquor traffic. We are face to face with the greatest crisis in our country's history. The alcohol question must be settled within the next ten years or some more virile race will write the epitaph of this republic."

SOME THOUGHTS ON INFANT FEEDING.

Many years ago the phenomena that took place in milk were regarded as due to chemical reactions of one body on another. With the advent of Pasteur all such phenomena were attributed to the action of bacteria. Since that time all products of fermentation, putrefaction, etc., have been attributed to the ever present bacteria. Bacteria are present in health as well as in disease and it is but plausable to assume that their presence in health is for a purpose and that this purpose is to assist as a ferment in the transformation of fat or casein into a soluble fat or casein. That this must be so can be proven by the fact that when milk is boiled or sterilized, or subjected to superheating which kills all bacteria, the milk looses in nutritive value but the bacteria in dead form loose the power of a live ferment. Such milk is not as well assimilated as it would be when such bacteria are alive and functionate. Nature has assigned to certain bacteria in milk a function which is peculiarly their own. When we deprive them of this function we interfere with the milk proper and render it a less nutritious fluid as can be seen by a study of the remote effects of such milk resulting in either scurvy or rickets.

Bacterial life and enzymes are necessary factors in the assimilation of milk. The importance of such enzymes are more apparent when atrophic manifestations appear due to casein indigestion or fat indigestion during the feeding of sterilized milk. In such cases we find that the body weight decreases and the baby looses steadily until a real live food such as the malt food similar to the Loefflunds malt soup is given. Thus we have a radical change from a former sterilized food (a dead food) to this new malt soup preparation containing live factors. Nature demands this to aid the weakened infant in the proper emulsification of the fats and the digestion of the casein. Unless casein is properly assimilated we lack the most important element necessary for tissue building.

Whoever is willing to study the nutritive value of a baby reared on the human breast, which is raw milk and compare such result with an infant reared on boiled cow's milk or sterilized milk he will quickly decide in favor of the raw milk be it from the human breast or from the cow. Human milk whenever possible is my first choice. No artificial food has ever been made that will be equal to, and supplant nature's nutrition. The very many live factors in the human breast render the milk easily assimilated besides the human serum carries immunity as a rule during the breast feeding period. That this must be so can be seen by studying the rarity with which an infant at the breast contracts the acute infectious diseases.

LOUIS FISCHER, M.D.

PEDIATRICS

ORIGINAL ARTICLES

CERTIFIED MILK AN UNSAFE FOOD*

BY

KENELM WINSLOW, B. A. S., M. D. V,. M. D.

Author of the Production and Handling of Clean Milk, Member of the Amer. Med. Assoc. of Medical Milk Commissions, etc.

SEATTLE, WASH.

Beginning as a strong advocate and as a first distributor of certified milk in this city, I have gradually been forced to the firm conviction that no raw cow's milk is a safe food. When we consider that milk, rather than bread, is the staff of life for the young and sick, it is evident that it should be free from harmful influence.

Certified milk is indeed the best possible product at present, but that it is not infrequently dangerous is an easy matter to demonstrate. Then, again, certified milk is but a drop in the bucket, constituting one-half to one per cent. of the total supply of large cities. It would be more plentiful if the prosperous bought it. In view of its expense it has been suggested that the rich remain so because they do not buy certified milk. It is now time to advance a step farther than certified milk has gone. One of the foremost bacteriologists and sanitarians recently wrote me that the feeding of raw cow's milk to babies is a crime. Dr. Coit, the deservedly famous originator of certified milk ,tells me that he not infrequently pasteurizes it for babies.

To review briefly the dangers of raw cow's milk we may classify the sources of its contamination as follows: (1) From the surface of the cow; (2) from the air; (3) from flies; (4) from the inside of the udder; (5) from the vagina and rectum of the cow; (6) from milk handlers, milk utensils and impure water.

(One, two, three) To consider precisely the special infections which may be derived from these sources, the first three (*i. e.*, infection from the surface of the cow, flies and from air) comprise that present in ordinary market milk and come largely from cow manure, consisting of putrefactive bacteria of the colon type responsible for the diarrheal diseases of infancy. The more important organisms in this group are Shiga's dysenteric bacillus and B. proteus. These sources of infection are usually wholly avoided in certified milk.

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*Read before King County Medical Society, Seattle, Wash., May 13, 1912.

(Four) The acute infections of the udder are due to streptococci staphylococci, diplococci, bacteria of the colon type and B. necrophorus.

Chronic infections are caused by tuberculosis, actinomycosis and botryomycosis. The latter two diseases have not, so far as I know, been conveyed by milk to man. Streptococci are normal to milk and the harmless can not be distinguished from the pathogenic forms, microscopically. Leucocytes are also normal to milk and one cannot differentiate them from pus cells. Some cows indeed have a large leucocyte count in normal conditions. There are two ways of detecting infection of milk from inflamed udders—by microscopic examination of the centrifuged sediment of milk for pus and bacteria and by veterinary inspection of the udder. The standards for the normal number of leucocytes and streptococci in milk are necessarily somewhat arbitrary.

In any event, streptococcus infection, when found in milk, must be traced to its individual bovine source at the farm and the milk remains contaminated until this discovery is made. Regular veterinary inspections are rarely made, except on certified farms, and then not oftener than once a month, in most cases. So that infection of milk must frequently occur before the diagnosis of mastitis is made.

Aside from tuberculosis, many general infectious diseases of the cow, as anthrax, cowpox, tetanus, rabies, black quarter, contagious pleuro-pneumonia, foot and mouth disease and trembles (milk sickness), may possibly be communicated by milk to man. Human epidemics of the last two diseases have often been reported. Streptococci infection of the udder has very frequently been conveyed to man by milk, setting up what is called septic sore throat or tonsilitis. Many outbreaks followed by fatalities have been recorded, especially in England (Swithinbank and Newman).

Of the chronic infections udder tuberculosis is the most common. Tuberculosis from this source, from general infection, from contamination of the milk with feces and vaginal discharge, do not require much comment.

Suffice it to say that Park finds tubercule bacilli of the bovine type in milk to be the cause of ten per cent. of the deaths from tuberculosis of children in New York City. The German commission found an identical mortality, while the British Royal Commission reported a mortality from tuberculosis in children caused by milk to be twenty-three per cent. of all cases. One fact I wish especially to emphasize—that tuberculosis is not uncommon in certified herds. Dr. North is well qualified to speak on this matter, being a former producer of certified milk, active in bacteriologic and sanitary milk work, and now chairman of a Committee of the American Association of Medical Milk Commissions to investigate the presence of tuberculosis in certified herds. His latest report at the 1912 May meeting shows that four per cent. of the cows of 30 certified herds, are tuberculous. (Ten per cent. of the milch cows throughout the country are tuberculous, as estimated by Melvin, based on 54 million cattle slaughtered and 200,000 tuberculin-tested by the United States Bureau of Animal Industry).

While this is heresy, we must face facts. The writer has knowledge of a herd which had supplied certified milk for years when, without any warning, at one of the periodic tests, 20 per cent. of the animals were found to be tuberculous. At about this time an infant, who had subsisted wholly on this certified milk from the farm just referred to, died of tuberculous meningitis as proven by animal inoculation of the cerebro-spinal fluid. After a careful investigation no other source of tuberculous infection of the baby could be assigned other than the certified milk.* While absolute proof of this is wanting, the supposition is reasonable.

(Five) Now as to milk infection from contamination of milk with feces and vaginal discharges. The organism (B. abortus) of contagious abortion, a common disease of cows, has recently been found in about 20 per cent. of the samples of milk from 31 dairies and is capable of producing serious lesions in animals (Mohler and Traum, Schroeder and Cotton). This and pus organisms in vaginal discharge contaminate milk. In cow feces is found very frequently tubercle bacilli and many putrefactive bacteria of the colon type, more especially in animals affected with enteritis and diarrhea.

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*In the discussion of this paper Dr. G. B. McColloch stated that three children under his care had died of tuberculosis acquired from the milk of this certified farm and that two more had tuberculosis glands attributed to the same source.

(Six) We will finally consider the infections of milk dervied from man, directly and indirectly. These are conveyed by the hands to the mouth in testing milk, by contaminated milk utensils and returned empty milk bottles and cans from infected premises. It is to this human contamination of milk that I wish again to particularly attract your attention, since we are often powerless to prevent it, even in our trusted certified milk. The comparative frequency of the more common milk-borne infections may be seen by the analysis of 253 epidemics arising from milk studied by Trask. In these 253 outbreaks there were 179 of typhoid fever, 51 of scarlet fever and 23 of diphtheria. McCrae traced 17 per cent. of 163 epidemics of typhoid fever to milk, and Raudnitz attributes 25 per cent. of epidemics of typhoid fever in Austria to milk. Within the past five years, in Boston, there has been a total of 3,000 cases of typhoid fever, scarlet fever and diphtheria traced to milk.

That particular danger which it seems practically impossible to avert is from "carriers." Note two modern instances. In Boston and vicinity, within the period of a few days in May, 1911, some 1,084 cases of septic sore throat or tonsilitis appeared and resulted in 48 deaths. This outbreak has been studied by one of our leading bacteriologists (Prof. C. E. A. Winslow). He traced the disease to an apparently healthy streptococcus carrier engaged in handling the milk at the farm. The farm has to my knowledge been celebrated for a generation for the purity of its products, and both a veterinarian and sanitarian of the highest standing were employed to supervise and control the output. The report finds that pasteurization of milk is the only means of avoiding such calamities and that the Boston epidemic could have been averted by no other measure.

Again, in New York, in 1911, Bolduan and Noble (*Jour. A. M. A.*, Jan. 6, 1912), described an outbreak of several hundred cases of typhoid fever traced to a farmer who, apparently healthy, had been a typhoid carrier for 46 years. This individual had, moreover, unusually cleanly personal and dairy habits. The epidemic was cut short on the second day of its appearance through the clever work of the reporters.

So much for the evidence and the facts; now for the remedy. Milk is an ideal source of infection, since neither in appearance, taste nor odor does it betray contamination with pathologic organisms, many of which multiply as in a culture medium, while there is no ready test for their presence. Because prevention is at times practically impossible we must resort to curative means. Heating milk is the only harmless remedy. While there has been an infinity of words to show that heating harms milk, there has been no sufficient evidence to prove it, when heating of clean, fresh milk is done at the right temperature, for the right time, followed by rapid cooling, and sealing, and taken within a reasonable period from the same package from which the milk was heated. The best temperature and time for destroying all pathogenic bacteria, without harming milk, has been determined by many authorities (Theo. Smith, Rosenau, Hesse, Freeman, Russell and Hastings) to be 140 for 20 to 30 minutes.

This was about the degree of heat which first gave his name to the process when Pasteur, in the early sixties, used it to prevent souring of wine and later applied it to preserve beer. Heating may damage milk in its vital, chemical and physical properties. The vital properties consist of its ferments (galactase, lactokinase, lipase, etc.), which naturally perish in milk when it is a day or two old. The enzmyes are useful in aiding the digestion of proteids by converting cow proteids of milk into human proteids by a breaking down and building up process. Lipase aids fat digestion. There is besides a germ-destroying substance in fresh milk. These various bodies are destroyed by a temperature of 150 F. and over, but not by heating to 140 F. Heat affects the physical properties of milk in preventing the fat globules from coalescing and forming cream. If heated to 149 F. there is little rising of cream. The cooked taste develops to 158 F. and over. Coagulation of albumin and globulin begins at 145 F. and the precipitation of lime and magnesium salts and phosphates also, while at higher temperature casein is rendered less digestible and C O is driven off. None of these changes occur in milk heated to 140 F. Pasteurizing at the ordinary commercial temperatures (140–160 F.) does not destroy all bacteria, but kills or inhibits many of the lactic acid-forming organisms. There are, however, enough of the latter left which resist heat at these temperatures to cause normal souring of milk, and the group proportions of bacteria common to raw milk are not materially altered by pasteurization. Contrary to the teaching hitherto (Ayres and Johnson). When higher temperatures are used all the organisms but spores may be killed and the milk may putrefy like meat without souring.

There is no sufficient evidence to show that properly heated milk is a cause of scurvy, rickets, malnutrition or anemia in infants. Falkenstein and others, in experiments carried on for years, find that both babies and calves grow best when fed on their own mother's unheated milk, but that babies do equally well whether fed on raw or heated cow's milk. It is true that the American Pediatric Society reports, of 1898, showed that one-third of the collected 379 cases of infantile scurvy had been fed on sterilized milk, yet in France Variot reports no single case of scurvy in 3,000 infants fed on boiled milk. Carel, in Paris, found twice as many cases of rickets in babies fed on raw milk as in those taking cooked milk.

Scurvy is due to an unvaried diet. It occurs in guinea pigs given only bread or grain and is cured quickly, as in infants, by fruit or meat juices, fresh vegetables or potatoes. The average death rate on Randall's Island, New York, was 41 per cent. when the babies were fed raw milk from a selected herd pasturing on the island, but, since 1898, using the same milk heated, the mortality has been cut to 21 per cent.

One of the chief hypothetical objections to pasteurized milk is that the process removes the stimulus to produce clean milk. But it is just as important to have milk clean for pasteurization as it is for any other purpose. What we need is pasteurized certified milk. Pasteurization is not sterilization—far from it. While the specific pathogenic organisms are killed by pasteurizing temperatures one cannot make a dirty milk sterile by the process.

To show the percentage of bacteria which are destroyed by pasteurizing we may give the following figures: A sample of milk containing 400,000 bacteria per cc., after being heated 20 minutes at 142 F., held 23,000 bacteria; while milk previously containing 40,000 bacteria was found to contain 3,000 bacteria after a similar heating. Of course the percentage of bacteria killed by heating is not uniform. Thus, of two samples of raw milk containing each 2,000,000 bacteria per cc., one contained 8,000 and the other 30,000 after pasteurization for the same time and temperature (North).

Pasteurized milk is similar to a vaccine in containing dead bacteria and their products. These may be harmful in large amounts. We have no evidence, however, at present to prove it. The true toxins of disease with which we are familiar, as those of tetanus, and diphtheria, are not poisonous when swallowed (except that of B. botulismus), and when inoculated are rendered inert by pasteurizing. Concerning the dangers from dead bacteria and their endotoxins, when ingested, we are not yet in a position to speak with authority. Victor Vaughan, Jr., has recently shown that occasionally proteids, commonly harmless, are at times absorbed unchanged from the intestines and may give rise to anaphylaxis.

Commercial pasteurization has passed through several stages and is at last approaching something like perfection. First the imperfect "flash" method was employed by milk dealers to prevent milk from souring on their hands. In this process the milk is allowed to flow in a thin stream over hot metal and is brought to a temperature of 58 F. to 76 F. for a minute or two. The flash method is still the prevalent one.

The next improvement consisted in the "holding" method, in which milk is held in a tank at a fixed temperature varying from 145 to 150 F. for 30 minutes by means of an automatic device. Both processes are terminated by rapid cooling, and the milk is then run into bottles or cans.

Recontamination of milk has always followed. The writer showed some eight years ago that milk leaving the pasteurizer with a content of 15,000 bacteria per cc. was found to contain many millions of bacteria per cc. when taken from the can on the delivery wagon. There is also a great increase in bacteria in bottled milk. Koehler, in Chicago, found that the bacteria increased on the average in bottled milk during the month of January from 40,000 on leaving the pasteurizer to 185,000 when delivered. In July the milk which left the pasteurizer averaged 277,000 bacteria, while in bottles on the wagon it averaged three and one-fifth millions bacteria. The real danger of pasteurizing milk in bulk, however, is from human infection of the dairy apparatus, milk bottles, and caps by means of the fingers, breath, dust and water.

The beer industry passed through all the more recent phases of pasteurization of milk years ago. In order to stop the fermentation of beer it has been necessary to heat the finished product to kill the yeast fungus and miscellaneous bacteria. Finding that heating beer in tanks, followed by bottling, always resulted in recontamination, the brewers adopted the process of heating beer in bottles in hot water baths or showers at a temperature of 142 F. for 20 minutes, followed by cooling. Dr. North, of New York, has applied the experience of the beer industry to milk and has induced several companies to heat bottled milk sealed with the new tin cap, in the same apparatus employed by the brewers.

Another method of preventing the reinfection of pasteurized milk by employes, dust or by non-sterile bottles has recently been tried. This consists in the bottling of heated milk, which has been held in a pasteurizer for 30 minutes at 145 F. and allowing it to remain in the capped bottles in a warm room. The temperature of the milk will drop some 10 to 15 degrees during this time. The object is to pasteurize the bottles with the already heated milk. The bottles should be capped with the crimped metal-capped cork seals (like those on beer bottles) and then they are carried, after standing 15 minutes, by mechanical conveyors directly into tanks of ice water for rapid cooling.

The advantage consists in economy by enabling commercial plants to retain the very expensive pasteurizing machines now in use. If successful the process is a great improvement but not so ideal as complete pasteurization in the capped bottles.

Home pasteurization is at present the safest method, since pasteurization commercially in bottles has not become general. By boiling water in the outer part of the double boiler and removing it from the stove and pouring milk in the covered inner part, it will be found that milk may be brought to exactly 140 F. within 10 minutes and retained at that point for 30 minutes with the exception of the loss of two degrees during the last five minutes. With a thermometer any intelligent person can readily arrange the conditions so that the result will be always the same and after a few trials there will be no need of using any temperature tests. The milk should be immediately cooled. For infants the total milk supply for 24 hours is best heated at 140 F. for 40 minutes and cooled in Freeman's pasteurizer. What has been said as regards the necessity of pasteurizing milk applies with equal force to raw cream used for food and for butter; also to milk for cheese making.

The following propositions contain a brief summary of this paper:

1. That various infections may be conveyed to milk from

diseased udders of cows that can not always be prevented—even in certified milk. Of these streptococcus and tuberculous infections are most dangerous.

2. That an uncertain percentage of cows supplying certified milk are tuberculous.

3. That raw cow's milk is liable to contaminate with the organisms of many human infections which is impossible to avoid—even in certified milk.

4. That heating of milk at the proper temperature and for the proper time, followed by cooling, is the only way to prevent milk-borne infections.

5. That there is no sufficient evidence to prove that proper heating harms milk in its vital, chemical or physical properties, or lessens its food value, or in any way injures the health of persons, including infants, taking it.

6. That the cleanest milk is most suitable for heating, since only a percentage of the bacteria are destroyed. That the only safe pasteurized milk is that properly prepared at home, or properly pasteurized commercially in the capped bottle and delivered in the same.

THE CHILD'S RIGHT TO BE WELL BORN

BY

FRANK I. DRAKE, M. D.
MADISON, WIS,

"If the great army of philanthropists ever exterminate sin and pestilence, ever work out our race's salvation, it will be because a little child has lead them". Thus spoke President David Starr Jordan. I come tonight to plead the cause of the little child; to lay before you the evils of the physical and mental deterioration under which thousands are born today, and to point out the straight and narrow path which leads from a land of racial decay and possible extinction to the kingdom of a rejuvenated manhood and racial perpetuity. On every hand in our daily walks of life the signs of decay may be seen on human features as plainly and as distinctively as the blackness of the Ethiopian's skin. The constantly increasing number of degenerates claiming care and protection at the hands of public and private charity, the ever augmenting sums of money appropriated for the equipment and maintainence of homes and asylums, have aroused serious alarm the world over. America, England, France, Germany, the entire civilized world, in truth, forsees the danger and is casting about for some means to avoid the impending disaster.

And so I come to ask you to join this crusade for restoring to little children their long lost birth-right of a healthy body and a sound mind; to ask you to create that sanction of custom, of religion and of law, which shall prohibit any marriage bond which must result inevitably in a deterioration of the human race. For, my friends, the time has gone by when man was looked upon as the product of a special act of creation, when nature and nature's laws were fancied to be obedient to his will. No modern Joshua has commanded the sun and the moon to stand still "until the people have avenged themselves upon their enemies"; no modern St. Peter or St. Paul have suspended nature's last great fiat and breathed the breath of life into the nostrils of the dead. In the lexicography of present day science there is no such word as miracle. We have come to recognize the unity of the all pervading forces of nature and to know that man, instead of being an exception to nature's law, instead of living above and outside her realm, is an integral part of nature and subject to her influences equally with other mammals, which he resembles in every structure and in every function of his body.

Half a century ago Francis Galton learned how plants and animals develop by the accretion of minute differences, and he set himself the task of discovering the effect of such accretion on the human race. At that early day he discovered what must be realized by all who have given thought to the work of Luther Burbank or to the achievements of animal breeders that the power of man in producing variations in plants and animal life, according to the principals of the Mendelian law of heredity, is enormously great; in fact that physical structure and mental equipment may be moulded like clay in the breeders' hands. From the studies and observations of this great man has been evolved the modern science of Eugenics which includes "a study of all those agencies under social control which improve or impair the racial qualities of future generations physically or mentally."

Before attempting to review the agencies under social control which influence the character of future generations, I want to direct your thought to the two fundamental principles underlying the science of Eugenics and then give you somewhat in detail the existing conditions which have aroused the apprehension of civilized nations.

Now the process of evolution has become so thoroughly established as a part of the scientific knowledge of the day that no argument is needed in its support. I merely wish to point out that the two great fundamental principles upon which this process rests, viz: variation and selection, are also the two basic principles upon which the superstructure of the science of Eugenics is builded. Without evolution there could be no science of Eugenics.

I suppose that no one will question the statement that dogs are born in great variety and in great profusion in Madison as well as in Constantinople. From the gentle lady's lap dog they pass up through every gradation of size, shape and color to the dachshund, the wolf-hound, and the noble St. Bernard. The dispositions of these animals excite but little less marvel than their sizes, shapes and colors, for they are found to be gentle, kind, and intelligent, or sneaking, vicious, and ugly by nature. Indeed all animals present these varying characteristics. However much one sheep of a flock may to the casual observer look like another, it is said that the experienced eye of the shepherd easily perceives characteristics which distinguish one sheep from every other member of the flock.

Now this individual variation exists among plants as well as among animals. Stem, leaf, flower and fruit have a certain individuality of form, size, color, or flavor that distinguishes it from every other plant of the same species, and, what is very important from the Eugenists standpoint, there is a certain tendency on the part of both plants and animals to reproduce these variations in their offspring. By careful selection any variety may be reproduced to an enormous extent.

Man, subject to the same natural laws, may be regarded from identically the same point of view. Indeed it doesn't require a trained eye to distinguish variations of size, form and complexion in the physical structure of man; nor does it require long business or social contact with him to discover shades of disposition that might excite the envy of a gentle St. Bernard or put to shame a snarling cur.

For the Eugenist, then, it is profitable to study these variations on the basis of those innate qualities which are brought about by a modification of the germ cell. With this basis in mind we may distinguish two classes of individuals (1) those who, in consequence of greater immunity from disease, of a greater vitality, of a greater adaptability to surroundings, have an advantage in the struggle for existence, and who not only survive but gain strength by reason of the struggle. Such individuals make for the progress of the human species. They are the ones who raise our standards of physical and mental development.

On the other hand, (2) there is a class who may be looked upon as the opposite of those just mentioned. They are the subnormal, the pathological variety, the unfit of the world. This unfitness may manifest itself as a physical defect, or, more often in this world where mentality counts for more than physique, the defect is mental. This is easily explained when we remember that the mental faculty was the latest faculty to develop in the evolution of the human race and therefore it is the weakest and the least stable of all the faculties. The individuals referred to are born without mental stamina, they are weak willed, the wastrals of the earth; they create no wealth but rather destroy wealth; they are the insane, the feeble-minded, the epileptic, the criminal. These are they who retrograde from our standards of physical and mental excellence and sooner or later become a burden upon society.

We can all call to mind examples of these degenerates, but I may be permitted to mention two families of this character well known to criminologists—the Jukes family and the "Tribe of Ishmael." The genealogy of the Jukes family has been well worked out by Dugdale, who found that in seventy-five years the descendants numbered 1200 individuals, 310 of whom were professional paupers who spent an aggregate of 2300 years in poor houses; 50 were harlots; 7, murderers; 60, habitual thieves; and 130, common criminals. This family was an economic loss to the State of New York to the extent of $1,300,000.

The "Tribe of Ishmael" was reported by McCulloch down to 1888, at the 15th Annual Conference of Charities and Corrections. This family numbered 1692 individuals and may be similarly divided among petty thieves, harlots, vagrants and murderers. Here is a history of social degeneracy, without a known parallel, extending from a supposed 17th century English convict ancestry to the present day horde of wandering and criminal descendants. To suppose that so large a proportion of these large families of their own wicked wills should choose to be robbers, harlots, murderers or thieves rather than honest citizens is to suppose what is exceedingly improbable. How much more reasonable is the explanation that they were the innocent victims of a depraved organization passed on from generation to generation. In this connection I am pleased to quote from Doctor Maudsly's book "Body and Mind." "At the end of the most subtle and elaborate disquisition concerning moral freedom and responsibility, the stern fact remains that the inheritance of a man's descent weighs heavily upon him through life as a good or bad fate. How can he escape from his ancestors? Stored up mysteriously in the nature which they transmit to him, he inherits not only the organized results of the acquisition and the evolution of generations of men, but he inherits also certain individual peculiarities and proclivities which determine irresistibly the general aim of his career while he fancies that he is steering himself and determining his course at will, his character is his destiny. The laws of hereditary transmission are charged with the destinies of mankind."

These departures from the normal type of individual, like the poor, are always with us and consequently they excite but littl eattention, and no attempt is made to bring about an improvement in the race. In our domestic plants and animals improvement is effected by the process of artificial selection. For his seed corn the farmer selects a variety having a large percentage of starch. He then chooses the largest ears on which the kernals of corn are set the most firmly and the most closely together, on which they grow out roundly and fully down to the tip. He reasonably expects to improve, and thus actually does improve, the grade of his crop from year to year. So it is with cattle, horses, dogs or sheep. Selecting the most desirable characteristic the race is improved by a process of like and like breeding—Percheron horses with Percheron horses, coach dogs with coach dogs, but never Percherons with mustangs, nor coach dogs with lap dogs, with the expectation of improving the characteristic quality of one or the other. It is common knowledge among sheep breeders that Seth Wright, a New Englander, noticed a peculiar looking lamb in his flock—one of those abrupt and spontaneous variations which Professor Gautier believes to be the principal origin of races. It had a long body and short legs and therefore could not jump fences with the agility characteristic of the rest of his flock. Mr. Wright prudently kept this sheep for breeding purposes and from Seth Wright's ram sprang that whole race of Otter sheep which was common stock in New England many years ago. "There is no variation" says Mr. Huxley, "which may not be transmitted and which if selectively transmitted may not become the foundation of a race. This great truth sometimes forgotten by philanthropists has long been familiar to practical agriculturists and breeders." And may I inquire if this rule applies to animals why may it not also apply to man, who possesses every physiological and anatomical characteristic of animal life? I believe it may and does apply equally as well.

However, we must remember that there is a great difference between the breeding of the human animal and the ordinary animal, which makes our problem increasingly difficult of solution. In these last creatures there is a long line of pure ancestry reared in the same geographical position, under the same natural influences and under conditions not dissimilar to modern laboratory control. The changes noted in their structure have been slow and gradual, in response to changes in environment covering ages of geological time. In their native wilds the buffalo never breeds with the elk, nor the lion with the tiger. Each follows its own system of like and like breeding, keeping the strain pure and unchanged.

In man the very reverse has been the case. War, conquest, migration, slavery and travel have changed his habitat as widely as the poles and limited only by the earth's circumference. A thorough commingling of the different races has ensued, with the result that this breed is a most strikingly mixed one, and among civilized people, at least, scarcely a pure strain is to be found. Of all civilized peoples the Jews, perhaps, have kept their racial characteristics the purest. Pride of race, contempt for the Gentile, has, with few exceptions, kept their blood free from foreign taint for thousands of years. For centuries before their modern competitors were released from the ignorance and the superstitions of barbarism, this people possessed a racial and a national entity, and their physiognomy, if we may judge from the medieval caricature and from the works of Greek sculptors, retains the lines of its ancient Assyrio-Babylonian prototype to this day.

It is fitting now that we should inquire what are the present conditions and what is the attitude of society towards these dependent classes. The following facts which I have gleaned from the tenth biennial report of the State Board of Control of Wisconsin Charitable and Penal Institutions, may be considered fairly representative of the country at large. There are 11 state institutions under the care and keeping of this Board. Besides, it has supervision over 32 county asylums, 71 jails and 46 poor-houses. The aggregate population of these institutions at the close of the year, June 30th, 1910, was 12033. To properly carry on the routine work of these institutions requires the services of approximately 1200 men and women. The total amount expended for poor relief for the year, including the maintaining of poor-houses and out-door relief, amounted to $541,750, which was greater by $100,000 than that for 1899. The expenditures for the maintainance of the several state institutions and the 32 county asylums amounted to $1,670,904, to say nothing of the enormous sums invested in lands and buildings. In our compasssion for human misfortune and suffering, in our great zeal to extend a helping hand, money is thus spent freely as becomes a wealthy and prosperous state. We confine the insane in a sumptuous hospital until his mad paroxysm has subsided; we shut up the criminal until his insult to society has been atoned by a term of years in prison. We then send them forth clothed and fattened, but neither cured nor reformed, only to beget others of their kind, who will feed on the bounty of the state when the parents shall have been gathered to their fathers.

Society has been no less active in other lines of work. The last few years have witnessed a series of movements, hygienic and sanitary in nature, almost world-wide in extent, which challenge the admiration of the entire world. The most notable of these movements from the Eugenists' viewpoint is that for the prevention of infant mortality. Contrary to the ancient custom of judicial infanticide, the weaklings, the unfit children, are not merely allowed to live, but they are encouraged and helped by every known means so to do. As a result of legislation in many states to secure a pure milk supply, as a result of instruction to mothers in the proper hygienic care of infant life—feeding, clothing, bathing and housing—the mortality rate of early infancy has fallen from 76.9 per 100,000 of population in 1900 to 71.7 in 1908. Indeed the people have become so thoroughly imbued with the idea that environment counts for everything, that the whole tendency of modern times is to disregard the race as a whole and concentrate attention on the individual. We choose to succor the unfit to the neglect and injury of those more capable of standing the storm and the strain of modern times, to disregard heredity under the delusion that improved environment must invite a consistent racial progress. Wherever you gaze, from the Atlantic to the Pacific, homes and hospitals, asylums and orphanages, reformatories and prisons, are scattered over the land as common as dandelions on a spring day, all having an eye single to one object—to help the weak, the incompetent, the unfit. "Millions for relief but not a dollar for prevention has been the policy of American philanthropy." said Governor Wilson. And this great burden of supplying money for the care of this vast horde of delinquents falls heavily upon the shoulders of the fit and the competent. The effort put forth to sustain his tremendous load is having a noticeably adverse influence upon the propagation of the fitter stocks. Reports that reach us from every civilized land bring unmistakable evidence of a rapid decline in the production of high grade families. The people who desire to set up homes of their own are beginning to realize that it doesn't pay to rear a family handicapped as they are in the effort, punished as they are in parenthood.

If what the authorities tell us is true, viz: that 60 to 75 per cent. of all infantile deaths are due to preventable causes, and if it is true, as I have just pointed out, that because of the wide diffusion of our increasing knowledge of the care and management of infant life, the death rate of babies is steadily falling, then as a consequence many weak, puny, ill-born infants who would otherwise have succumbed to disease are saved to the world. We are thus interfering with one of the fundamental laws of nature; we are checking the natural purification of the State; we are suspending the action of a selective death rate. True, out of this mass of wastage may develop a few strong, desirable characters. Out of the dross of the mine a few grains of pure gold may always be gathered. But this increasingly large salvation of infant life means a fresh increment to the multitude of the insane, the feeble-minded, and the epileptic, and the State, whether in stress of war, pestilence or famine, will be called upon annually for vast sums of money and an army of men and women for their care and protection.

Moreover, the policy of the State of gathering together under her own wings all the maimed, the halt, the blind, and of thus relieving the relatives of the expense and inconvenience of their support and protection in a very substantial manner encourages their propogation. If it seems monstrous to you that the strong should crowd out the weak, I must protest that it is also monstrous that through a misguided charity the fit and the competent who are capable of battling against the storm and the strain of a tempestuous life should be pushed aside by the weak, the decrepit and the ailing ones. Wholesome environment, all the comforts and luxuries that wealth or social position may bring, cannot essentially improve the race, because they cannot influence any characteristic the germ of which is not implanted by heredity. Environment cannot reform innate criminal tendencies, nor educate the idiot, nor alter the predisposition to insanity. Schools and colleges are the ladders by which we mount to the heights of intelligence but they cannot create the capacity to climb—that must be born and bred in nerve and muscle. Good grooming, wholesome hay and oats, a sanitary barn, may produce a beautiful piece of horseflesh, but the blood of his ancestors makes the winner of the Derby.

Today, when the country is confronted with a rapidly falling birth rate and an increased rate of racial degeneracy, our only hope of relief, the one great stragetic point of attack, is the parents. We must instill into the minds of the people a more profound sense of the duties and obligations of parenthood. Clearly the first essential point to be gained in decreasing infant mortality is to have stronger, more vigorous babies. Healthy babies demand healthy parents, which means instruction not only in such forms of hygienic living as develop healthy bodies, but particularly as to those combinations in the marriage relation as are known to produce a race endowed with a vigorous mentality and a sound physique.

I have now noted that in considering the individual of greater importance than the race, we are traveling far astray from the direct path of Eugenic reform; and in devoting our time and money to means and methods of cure rather than of prevention, we are encouraging an ill-advised charity. What nature accomplishes slowly by the multiplicity of offspring and the pitiless destruction of all but the most fit, man may accomplish quickly by the careful selection of parentage.

From this hasty review of the attitude of society you may have gained a gloomy view of the situation. The outlook is dismal enough, but not disheartening. It is time for the State, however, to be up and doing; to throw off this incubus of degeneration and fast growing decay before it is too late. The remedy is simple and certain. Eugenic reform must be the shibboleth of succeeding generations. At the outset of this phase of my subject I must assure you that Eugenists are heartily in sympathy with every philanthropic effort to assuage pain, and suffering, and misfortune, of whatever character or at whatever cost. The lives of infants must be saved; the insane, the feebleminded, the epileptic, all must be clothed and housed and fed. Every noble sentiment of humanity bespeaks the care of the unfortunate and the protection of the helpless. But the high conception we have formed of the sanctity of human life should lead us to throw around the propagation of the human race the safe-guards of scientific knowledge and the admonition of the moral and the civil law.

Custom which is but another term for public opinion is a powerful force in any community. Fashions are made and unmade according to its dictates. Marriage ceremonies and funeral rites are not exempt from its far reaching influence. If by social and religious and legal sanction we can encourage marriage and the growth of families among the pure, sound, stocks; if we can, on the other hand, discourage the propogation of these unfortunates, we shall have done the state great service. What a great stride forward might be taken if the next generation would abide by a firm resolve that the succeeding generation should be better born than its predecessors. But what are the facts? What possibilities for evil today are due to a lack of legal and social restrictions in the marriage relation? Be a man ever so drunken, ever so sorely afflicted with epilepsy, ever so maniacal, in his so-called lucid interval he may marry; he may receive unchallenged at the bar of the state the legal right to procreate his kind. There is no law in the commonwealth of Wisconsion to say him nay. Moreover, under the absurd fetich of "Personal Liberty" public sentiment exercises but little restraining influence upon the marrying and giving in marriage of this large class of individuals physically and mentally unfit to propogate their kind. The normal mind fairly reels with horror at the spectacle, at the enormity of the crime against humanity.

Social sanction must stimulate a selective birth rate. Among the financially well to do, among the educated who realize the importance of both quality and quantity, an appeal to sentiment, to patriotism, to pride of family, may bring about the desired reform. But among the poorer classes who look upon children not as luxuries but as possessing an economic value, the reform must be worked out along economic lines. Let us not be shocked at the idea of looking upon a child as a financial asset to a family. It is not a palatable dose to swallow, to be sure, but I think a few minutes' consideration will convince us of its truth. In his "History of Ancient Egypt" Wilkinson quotes Diodorous to the effect that the whole expense incurred in raising a child in that country did not exceed 13 shillings and "This frugality," he adds, "is the true reason of the populousness of Egypt." By a very painstaking investigation of the causes underlying the decrease in the size of families in England, Karl Pearson, the foremost living authority on Eugenics, has discovered that this decline commenced almost simultaneously with the enactment of the "Factory Laws" in that country. By these laws, which gradually increased in stringency, we are told that children under 12 years of age were finally excluded from factory employment; they were destroyed as an "economic asset"; they became a source of expense rather than a source of income to the family. This same idea of the economic value of child life is prevalent among the Swiss population of my native country where large families are still common. As soon as a child is large enough to milk a cow he is able to work, to work and in a measure to pay his way in the world, and so a place for one more is found willing at the family table. We see, then, that those early day factory laws and our present child labor laws have made it increasingly difficult for the poor man to rear a family. "Parenthood is penalized," is discriminated against. In the face of these difficulties, it is not surprising that the production of children has been gradually shrinking. It follows naturally that any law which puts parenthood at a disadvantage in the struggle of life is unsound, illogical, and is promotive of celibacy.

What shall we do, then, to check this race suicide? Repeal the child labor laws and send the children back to the mines and to the factories? By no means. An appeal to the sentiments of the poorer classes, to pride of family, to love of country, will have no effect when the government which we are to love adds another burden to our earning capacity with the advent of every new face in the family circle. As well might we expect a slave to kiss the hand that wields the rod. The relief from this harassing difficulty must be sought along the same lines that produced it, but as I said not by a reversal of governmental policy. An illustration will be more effectual than whole pages of argument. Last winter our legislature passed the Wisconsin State Income Tax law which provides among other things that for every child under 18 years of age in a given family $200.00 of the family income shall be exempt from taxation. Intentionally or unintentionally, consciously or unconsiously, the framers of that law have recognized one of the fundamental doctrines of Eugenists by attaching an economic value to child life. It makes the possession of children a financial asset to the family and to that extent encourages reproduction. Measured by this standard the law is an excellent one but it should have gone one step farther and recognized the second fundamental eugenic doctrine by discriminating in favor of children born of healthy stock as against those born of degenerate stock. In the beginning a rough standard of differentiation would suffice, a fairly clean bill of health, absence of distinct hereditary taint. This would exclude the feeble minded and the epileptic. Later the scope of the bill could be enlarged to include other forms of degeneracy.

After all, the potential strength of womankind is a strong factor to be counted on to accomplish this great reform. It needs only to be aroused and liberated, and directed, and the thing is done. Since woman has been emancipated from the so-called drudgery of house-work and given her freedom to compete with man for a livlihood in the various trades and professions, she has come to learn one very important truth, viz. that thorough, prolonged preparation for the duties at hand is absolutely essential to success. Anyone without training attempting to pass himself off on the community as a competent lawyer, teacher, or engineer would soon suffer a serious check to his ambition—financial loss, the loss of social prestige and possibly render himself amenable to the civil aw. Now I don't hesitate to express my lack of sympathy with this much vaunted emancipation of woman, and no one realizes better than woman herself her inability to compete with men in the vast majority of her adopted trades and professions. Consequently she does just what we witness almost every day of our lives, viz. when an opportunity to marry is presented, she surrenders these extraneous callings and sets up household gods of her own, an act of which the community certainly approves and one that the interests of the race and the nation demand. Here is the vocation for which she is fitted by nature and coupled with motherhood she undertakes her noblest work, her highest function. She cannot shift her responsibility to other shoulders. Here there is no competition; her service is above price; and clearly the fate of the nation is in her hands. Indeed, the training of young women for the arts of home-making and for the divine beauty of motherhood offers greater opportunities for gratifying results than can be found in the fields of sociology or philanthropy. The world has a need for men, but it has a far greater need for mothers.

The day is dawning, moreover, when home making and motherhood will be regarded as the profession rather than as an incident in a woman's life; when she will give the same time and serious thought to her preparation for this work that she now gives to teaching, or to stenography, or to the milliner's art. I believe that the time is not far distant when the state, before allowing a marriage contract to be solemnized, will exact from the contracting parties sufficient evidence of soundness of mind and body. The latest Eugenic news from Europe is to the effect that the head of the Armenian church in Constantinople has decreed that hereafter every couple wishing to be married by the Armenian Church must furnish a certificate from a qualified physician attesting to the perfect health of the contracting parties.* This step plainly makes for human progress and is worthy the emulation of the entire world.

For long we have lived under the spell of sweet Nerissa's idle doctrine:—

"The ancient saying is no heresy
Hanging and wiving go by destiny."

Such a doctrine smacks of the pernicious Calvanistic doctrine of foreordination. It lacks every element of progress, and merely marks time in the march of human affairs. To marry or not to marry is not a mere question of sentiment. It is a matter of fact not feeling. In its last analysis it is a relation entered into for the benefit of the state. It looks forward to the prepetuity of the nation and of the race. The selection of one's mate for life, then, should be made with reference to this recent revelation of the power in our hands through artificial selection

Since this paper was written the dean of St. James and St. Paul's Cathedral in Chicago has issued a similar decree.

to improve the physique and the mentality of the race. It must be adopted and acted upon with fearless faith. Young men and young women must be taught that health and beauty and vitality, moral worth and mental soundness are the proper objects of admiration and the essentials of perfect mating; that wealth and social position and titles of nobility, the allurements of uncritical minds are often the garnishments that conceal a blighted generation. Such a wholesome sentiment should have the support of an ardent conviction and, as Roosevelt points out, the force of a religious tenet or a duty of patriotism. Indeed, the desire and the effort to bring forth a race of men above the average of ability is a manifestation of patriotism in its highest and broadest sense. Of all forms of self sacrifice, however, none is so plainly right, none so plainly in the interests of humanity, as the celibacy of those suffering from incurable hereditary diseases.

While the principles of this new faith have long been known to animal breeders, it is a subject in its application to the human species of which the masses of the people are wholly ignorant, and yet one whose practical application is as constant and wide as human love and marriage. The ancients evidently believed in the doctrine of heredity for Plato in Book Five of the "Republic" expressly taught that more opportunities for marriage should be provided for the brave citizen than for others in order that such a man's descendents should be as numerous as possible. It is evident that Plato had in mind the identical principles with which Eugenists are trying to inspire the minds of the people today, viz. that the nation which ignores the principles of heredity will suffer deterioration and decay; that the nation which acts fearlessly upon this faith will improve and multiply and replenish the earth.

While I have been trying to impress upon your minds the certainty of the transmission of all types of degeneration, let us take courage in the thought that virtues are equally as certain of transmission. Examples of such forms of transmission are numerous and conspicuous. Alexander the Great, Charlemagne, Macaulay, Darwin, Bach and our own Adams and Edwards are only a few of the scores of notable men whose genealogies have been worked out and recorded. These men were representatives of families which for several successive generations took leading parts in their various fields of activity.

All that I may reasonably hope to accomplish by this paper is to arouse your minds to a realization of the importance of the problem set before you; to show you that by a consistent and faithful application of this great law of heredity, the minds and the bodies of future generations may be elevated and strengthened. Having the knowledge are we not morally responsible for its faithful application? As honest trustees are we not in duty bound to pass on the estate to our heirs improved when our life interest in it is done? The man who, by an inauspicious marriage, knowingly pollutes the blood of his family; who consciously degrades the minds and the bodies of his progeny, is dishonest to his trust, robs his children of their just inheritance and reduces them to a state of physical and mental beggary. Where can you find a cruelty more wanton or more heartless? Considering finally, the rapid increase in degeneracy, and knowing the certainty of the transmission of such taint, one sees clearly that the only way to lift "The White Man's Burden" is by adopting preventive measures. Let us give heed to prevention rather than cure which only occasionally cures; prevention rather than punishment which only occasionally reforms; prevention by legal and social restriction; prevention by means of the surgeon's knife; prevention by the education of the masses. Thus do I plead the cause of the little child, believing with all my heart that the man of Galilee uttered a divine truth when he said: "Inasmuch as ye have done it unto one of the least of them, my brethren, ye have done it unto me."

CONGENITAL HYPERTROPHIC STENOSIS OF THE PYLORUS IN INFANCY.*

BY

C. PAGET LAPAGE, M. D., M. R., C. P.,

Physician to the Manchester Children's Hospital, Pendlebury

In infancy gastro-intestinal disorders accompanied by marked wasting are so common and of such varied origin that the practitioner is often in great difficulties both as regards diagnosis and treatment. It is therefore of great importance to recognize a condition in which, on careful examination for special symptoms and signs, a definite pathological state can be made out and special lines of treatment adopted.

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The condition of hypertrophic stenosis of the pylorus is one of early infant life, the symptoms usually beginning about the third week of life; they consist of forcible vomiting, marked and rapid wasting, and constipation, while, on examination of the abdomen, excessive peristalsis can be seen and a hard mass in the region of the pylorus felt.

The condition usually occurs in male infants, though not necessarily so, and it is more common in first-born children. Occasionally, but not commonly, it may be associated with congenital deformities, such as atresia ani, while phimosis is generally present. It occurs as commonly in breast-fed children as in bottle-fed, and there is no conclusive evidence that it tends to run in families, although Dr. John Thomson quotes three instances.

Let us take a typical case. An infant is brought for treatment with a history of persistent vomiting and rapid wasting; in spite of every care in feeding, no improvement has taken place; sometimes a change of food has led to a cessation of the vomiting, but this has been only temporary and in a few days the child has become as bad as ever. On inquiry it is found that the vomiting has dated from a few weeks after birth and has been of a forcible nature, the food being shot through the mouth, often to a considerable distance, and also coming down the nose. The vomiting does not always come on after every feed, but may occur only once or twice a day. The vomited material may be brownish and of acid smell, while the amount brought up at a single vomit is often far in excess of the amount of food just previously taken. The bowels have been constipated and the stools very small in amount; there may have been some greenish or loose stools but never large stools. The child, though quite well nourished at birth, has wasted rapidly from the onset of the vomiting, but there may have been a gain in weight in the first two or three weeks before the symptoms commenced. Such a history should always lead the medical man to a careful examination of the abdomen. This examination is for (1) visible excessive gastric peristalsis and (2) a pyloric tumor.

The peristalsis can best be seen by watching the abdomen in a good light just after the infant has had its accustomed feed. A few taps on the epigastrium may bring out the peristaltic waves, but they are not always seen and only repeated careful examinations can definitely exclude their presence. The typical waves can be seen to start under the left hypochondrium and pass across from left to right, one wave succeeding another until as many as three waves may be present at the same time. As is only to be expected, the peristalsis is often followed by the typical forcible vomit.

The pyloric mass is best felt at the time of the peristalsis when the part of the stomach near the pylorus is also contracted, and its situation is usually about the right nipple line, between the umbilicus and right costal margin. Careful palpation is needed and repeated examination may have to be made before it can be felt. Some observers recommend pinching up the abdominal wall between the finger and thumb, but this is not easy in most cases.

These are the two cardinal signs of the disease, and if that can be elicited there is no doubt of the diagnosis. However, all cases are not so definite, and we shall now proceed to discuss some of the symptoms in greater detail.

Usually very little of the stomach contents pass the pylorus in spite of the excessive action of the stomach wall. This leads—

(1) to the retention of food in the stomach until it is cleared out by a copious vomit (this retention is necessarily followed by dilatation of the stomach and often resultant harmful changes in the retained food);

(2) to atrophy through disuse of the function of the intestinal mucosa, followed by bodily wasting from want of food and fluid; and

(3) to marked constipation and extreme smallness of the stools. These three points may be taken in order.

I. The results of retention of food in the stomach are bad in several ways. First, the dilatation of the stomach may exercise a bad effect on the heart by pressure and, in practice, one often sees considerable improvement in the pulse and color after the stomach has been emptied even though the strain of vomiting has been great. Again, the gastric juice which is poured out into the stomach to digest the food is not reabsorbed as it should be, but is vomited. This entails a great loss of fluid to a system already receiving very little, and has, in my opinion, a great deal to do with the very rapid wasting in the early stages.

The retention of food in the stomach also leads to changes in the retained food, so that the vomitus is often sour in smell and brownish in color. (In one of my cases the symptom which alarmed the medical man in attendance was the vomiting of this brown material, which resembled that seen in hæmatemesis.) The noxious material in the dilated stomach may set up gastritis and lead to an excessive secretion of mucus and other complications. These changes must have a bad effect on the infant and the passages of this material into the intestine may set up diarrhœa and enteritis. Further, the retention of the former unvomited feeds spoils the effect of the later feeds because they simply mix with the material already in the stomach.

2. Atrophy of the function of the small intestine follows as a result of disuse. This is often shown vividly in those cases of pyloric stenosis where gastro-enterostomy has been done; in many such cases, although there is free passage of easily digested food into the intestine, the mucosa is not able to absorb well and the wasting continues with diarrhæa superadded. For the same reason, in cases treated medically, even when a certain amount of food does begin to come through the pylorus, it is absorbed with difficulty. Still the amount is so small at first that the intestinal mucosa has time to recover its powers.

3. The stools are usually very small, but they may be loose and green, possibly because the pylorus allows of the passage of some of the noxious material retained in the stomach. Nutrient rectal enemata may alter the character of the stools and give rise to the presence of large suet-like masses, but apart from these points the stools are important indications of the state of the pylorus and of how much food it allows to pass.

The tongue is usually coated, but this is not a constant sign and depends on the condition of the stomach. In the same way the infant is usually lively, bright, and hungry, unless there is much dilatation and retention of food, when he may become drowsy and pallid. There is often a tendency to twitchings and to nervous startings, while convulsions are said to occur in some cases. Intussusception was the cause of death in one of my cases, which was doing quite well, and Dr. Still has reported a case which proved fatal from the same cause.

Syncopal attacks are not uncommon and may be fatal, possibly because the dilated stomach presses on the heart and the strain of vomiting follows.

In the normal stomach the pylorus has two layers of muscle fibres, the circular or internal and the longitudinal or external; it projects into the duodenum like a miniature cervix uteri, forming a similar rounded prominence. From Cunningham's work it seems that the circular fibres are the constrictors and the longitudinal the dilators of the pyloric canal, and that the sphincter cylinders act at one time as an expelling and at another as a retaining force. In the fœtus the mucous membrane is usually in longitudinal folds.

In hypertrophic stenosis the pylorus appears as a solid cylinder about an inch long. It is paler than the rest of the stomach and of a hard, almost cartilaginous, consistency. Sections show a hypertropy of the circular fibres and also to a lesser extent of the longitudinal. The lumen of the pylorus is very small and appears to be obstructed by folds of mucous membrane. In many cases it admits of the passage of a small probe, but usually, if the stomach be filled with water, none passes through until considerable pressure is exerted. The stomach may or may not show dilatation; in some cases there is a very marked increase in capacity, but in others there is little, much depending on the duration of the illness and acuteness of the condition. The more acute the case the less is the dilatation. The hypertrophy of the muscle fibres often extends to the stomach wall and may affect the lowest part of the œsophagus.

Having obtained some idea of the nature of this affection we are now in a position to discuss its causation.

Our knowledge tells us that there is a true hypertrophy of the muscular tissues and that it may be present very early in life. Our theories try to account for this, and the main difficulty is to decide whether the condition is a congenital defect or developed as a result of over-action. Dr. John Thomson* states that "there is no doubt about the great hypertrophy of muscle; and this is to be regarded as certainly the result of antecedent overwork. This overwork is connected with nervous inco-ordination; but whether it can have arisen merely from defective development of the nervous apparatus, or whether

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Guide to the Clinical Examination and Treatment of Sick Children. Edinburgh W. Green and Sons.

it is due to some morbid change in the secretions of the duodenum or elsewhere, is still unknown." In the normal stomach the pyloris lets food through at the bidding of the intestine. "It seems more likely that some functional abnormality in the intestine may be at the bottom of an ill-timed gastric spasm. There is nothing in the anatomical condition of the parts to indicate that the obstruction to the pyloric lumen is ever due to anything except the tonic contraction of the greatly hypertrophied muscle and the puckering of the mucous coat to which this gives rise," He goes on to say that from clinical and pathological facts it seems that most of the hypertrophy takes place after birth, but that the movements of the pylorus may take place *in utero* and the functional abnormality begin then.

We find that similar conditions, such as disorders of deglutition and respiration, occur in infancy, and, further, many of the infants affected with pyloric stenosis are of the nervous type; but, in spite of this, pyloric stenosis shows a very definite increase of muscular tissue, and many points which are difficult to explain by this theory can be explained by the theory that the condition is primarily congenital. For example:—

1. Dent has found the condition in a seven months fœtus.

2. The symptoms come on so early in life that it is very improbable that such a marked degree if hypertrophy could take place in a few weeks.

3. In many cases the trouble, instead of coming on gradually and increasing in severity, seems to have what might be called a sudden onset. Not all cases are of this nature, but in a fair proportion little is noticed until marked and persistent vomiting begins suddenly in the second or third week.

4. Other conditions, such as Hirschsprung's disease or hypertrophy and dilatation of the colon, occur and are accepted as being congenital, though Thomson has suggested a nervous origin.

5. Operation in the first few days of life has shown that as much hypertrophy may be present then as at two or three months of age.

6. In cases which have been treated successfully, either surgically or medically, and have terminated fatally later from some other cause, the hypertrophy seems to have remained *in statu quo*, and not to have diminished as it should have done if it had been due to spasm.

On the whole it seems barely possible that a condition so well marked can be purely the result of disordered action, and one is forced to the conclusion that the cases vary in degree, and that in those cases in which there is a well-marked hypertrophy, peristalsis, and persistent vomiting, the condition is congenital, nature having produced an excess of muscular tissue at the pylorus. It is another matter when we come to deal with cases of gastric spasm, which may simulate the true cases very closely, and in which there is little doubt that nervous factors have a large effect.

Cautley strongly supports the theory of congenital origin, and divides his cases into (1) pyloric spasm (2) congenital hypertrophic stenosis. Koplik divides his into (1) spasm cases in which no mass is to be felt and little peristalsis can be seen, in which there is vomiting but no retention, the stools are not much smaller than is normal, and acid dyspepsia with nervous hypertension is present; (2) congenital spasm cases without hypertrophy; and (3) spasm with hypertrophy and incoordination.

Miller gives the differential diagnosis between congenital pyloric stenosis and acid dyspepsia in infancy, stating that cases of pyloric stenosis usually occur in males, show an early onset, more rapid wasting, less pain, a more coated tongue, vomiting of a more projectile nature, less increase in the acidity of the gastric juice, and very much more definite peristalsis than do the acid dyspepsia cases, while the tumor mass is only to be felt in the former condition.

Opinion is at present divided as to the respective value of medical and surgical treatment. Unfortunately one has to decide early, because once the decision is made and the line of treatment adopted it may be impossible to go back to any other method. For instance, if operation is decided on, it should be undertaken while the child is still well nourished and strong, and failure will mean an early death. On the other hand, if medical treatment is tried, the child may sink too low for operation even when medical treatment is holding out quite good hopes of ultimate success.

Some physicians are fully convinced of the superiority of medical treatment in all cases, but experience makes one doubtful whether early operative interference is not advisable in those cases of early onset with marked symptoms pointing to practically complete obstruction of the canal. Apart from these cases medical treatment holds out fair prospects of success in the majority of cases. In one of my most successful cases the patient was practically *in extremis* when brought to me, but in spite of this he responded quickly to lavage and suitable feeding and is now quite well. Another patient, in whom the onset was earlier and the symptoms very marked from the beginning, gave much more trouble, and finally died from syncope just when the outlook seemed to be becoming favorable.

The mortality in cases treated surgically is about 70 to 50 per cent., but it is not possible to give definite figures. The favorite operation is gastro-enterostomy. A high degree of skill is needed as rapidity is essential.

It is wonderful how well these tiny infants stand the operation, but the difficulties are not over with recovery from the operation. The intestine does not always assimilate the food even when there is a free passage, and one may be very much disappointed by the feeding difficulties following operation.

Medical treatment should be directed—

(1) to preventing both dilatation of the stomach and accumulation of noxious material therein, and

(2) to gradually overcoming the pyloric obstruction, so that food may get through into the intestine. In time it seems that the stomach and pylorus become less sensitive and there is less violent action.

When this occurs more and more food comes to be passed through the pylorus and a progressive gain in weight begins. The advance may be marked by one or two intermissions, and complications may always ensue, but in many cases when once the infant has begun to gain steadily convalescence is rapid enough to allay anxiety, and the final result is complete cure.

What is the exact state of the pylorus in these cases which have recovered under medical treatment is not definitely known, though in one of Dr. Batten's cases in which the patient died from pneumonia at the age of two years there was hypertrophy with little stenosis, and Dr. Cautley reports a similar cure under Ibrahim's care. In one of my patients who died from acute intussusception when well on the way to recovery there was marked hypertrophy and obstruction, which could only be overcome by squeezing the stomach fairly hard. However, complete recovery seems to be possible, because two of my patients, aged two and a half years and one year respectively, are now quite happy and well and have no digestive trouble at all.

The actual medical treatment may be outlined as follows:—

1. Carefully regulating the feeding with easily digested foods, which leave no residue, and have the greatest chance of passing the pylorus. Small feeds given frequently are necessary and one ounce every hour, or even teaspoonful feeds very frequently, will be found the best in the early stages. As the child improves and the vomiting ceases larger amounts at longer intervals may be given. Peptonized milk, Benger's, Nestle's, whey and albumen water, meat juice and other foods may be tried, and it is rather curious how a change in the food may lead to a temporary improvement, but the vomiting soon becomes as bad as ever. It seems to me that it is bad to give too dilute foods unless the stomach has just been emptied, because otherwise the feed is diluted still further by the fluid gastric contents. This shows the value of washing out the stomach, and in many cases it is quite a good thing to feed the child by the tube after first emptying the stomach. An infant is very little inconvenienced by the passage of the tube (I have seen an infant go to sleep while the tube was still in the stomach), and if the child does cry or tend to retch it is quite a good thing to give it a dummy teat to suck. The action of sucking may possibly stimulate the peristalsis, and for this reason one has been led to recommend spoon-feeding, but the gain in using a dummy teat in the way mentioned above is often great.

2. Gastric lavage, which is a very important part of the treatment, partly because it empties the stomach regularly without causing nearly so much strain as does vomiting, and partly because it soothes and cleans the gastric mucous membrane. One trouble is that the amount of mucus may be excessive and tend to choke the tube.

I have little doubt that in many cases there is a tendency to loculation of the stomach. In some cases the washing out of the stomach is apparently quite successful and yet it is followed by a large vomit. This is explained by the possibility of the tube only emptying the first loculation of a stomach resembling an hour glass, and the other loculation being emptied by the vomiting. Further, in the two cases I have seen examined by X-rays there was distinct biloculation, and Dr.

Bythell, our radiologist, tells me that he has examined two other cases and seen biloculation in all four.

3. Want of fluid naturally follows on the excessive vomiting. It is no good pouring fluid into the stomach, for it only adds to the dilatation; on the other hand, rectal salines or infusion can and should be used without hesitation. If the large intestine is irritable, or if there is much evidence of want of fluid in spite of rectal salines, infusion with normal saline should be used.

The value of feeding with nutrient enemata is doubtful, but in some of my cases there does seem to have been some improvement, and from the nature of the returned stools a certain amount of digestion seemed to have taken place.

Inunction with cod-liver oil may do good, and brandy is also very useful both to keep up the strength and from the medicinal effect it seems to have in aiding digestion.

Drugs are not of much value. In the cases of gastric spasm antispasmodics may have a very good effect and small doses of tr. opii or belladonna should certainly be tried. But in true cases of pyloric stenosis no antispasmodics can allay the vomiting, and beyond treatment of symptoms very little can be done by drugs.

ABDOMINAL DISTRESS IN CHILDREN BEYOND INFANCY.*

BY
LE GRAND KERR, M. D.
NEW YORK
Visiting Pediatrist, Methodist Episcopal, Williamsburgh, Swedish, and Bushwick Hospitals; Consulting Pediatrist, Industrial Home for Children and Rockaway Beach Hospital

One of the most difficult symptoms of disease in children properly to estimate is abdominal distress. Not only is it difficult to estimate but to give it its proper interpretation requires considerable judgment. The examiner need expect little or no co-operation upon the part of the patient in any procedure that he may take, and yet, in the clientele of every practising physician or surgeon, there is a large proportion of children who are brought because of this one symptom, abdominal distress.

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Now what is to be our attitude toward this class of cases; what are we to do with them? This is the main problem in this paper and all else will be made subservient to it.

For convenience, we might make a somewhat arbitrary division into the acute cases, the chronic, and the borderline, because this is practically what we do when we approach a case for the first time, and it is my aim to be practical.

The writer feels justified in a paper of this character in leaving out any more than a passing mention of those instances in which the symptom is due to violence; because the history of recent or remote injury is so strong a clue to the etiology.

Under the acute cases we naturally think of appendicitis first. And why? Certainly it is not because abdominal pain is necessarily an early or characteristic symptom in appendicitis in children, for that is not so. But the subject of appendicitis is so constantly forced upon our attention that we are led thereby to give to it an unnecessarily prominent place in our efforts to make the diagnosis.

Why not give similar consideration and prominence to those conditions which, although much less common in their occurrence than appendicitis, are just as important of recognition, and add to one's reputation for diagnostic skill because they are less common as clinical entities, but more common as diagnostic stumbling blocks. For instance, in going over my records for the past year, I find but one case in which appendicitis existed and the diagnosis was not positively or tentatively made before I was called. But during the same period, the writer has observed sixteen instances in which the diagnosis of appendicitis was positively made when the real condition was as follows: Lobar pneumonia in twelve cases, acute indigestion in two instances, a much distended bladder in one child, and intestinal parasites in another.

The large number of pneumonia cases should be noted. The writer is convinced that the majority of instances in which the appendix is removed in childhood and found normal, or only slightly abnormal, and the operative procedure followed by pneumonia which is attributed to the administration of the anesthetic, are not instances of ether pneumonias, but of mistaken diagnoses with the subsequent detection of a previously unrecognized disease, for which the surgeon and not the anesthetist should assume the responsibility.

Therefore, in advising the proper measures of relief in this class of cases, it is not so important to recall the chief causes of abdominal distress in children, as it is to remember and give due consideration to *all* of the causes.

Lobar pneumonia is a very common cause of acute abdominal pain in children; therefore, it is a safe guide that no matter what the acuteness of the abdominal pain or its location, if there exists a *marked* disproportion between the pulse and the respirations, pneumonia should be suspected as its cause. The symptoms which would emphasize a pulmonary involvement are sudden and sustained rise of temperature, increased respirations, relaxed abdominal muscles, and possibly cough.

Of the three cardinal symptoms of appendicitis, localized abdominal pain, localized abdominal tenderness, and rigidity of the recti muscles, abdominal pain is the least important in diagnosis, for it is often slight. Children show a characteristic inability definitely to locate pain, and this adds to our difficulties. While pain may be severe, tenderness is a more constant feature, although it may be difficult to elicit. Muscular rigidity is the most valuable of the three because it is never wanting in some degree. We may dismiss a detailed discussion of the associated symptoms, because of their inconstancy, and the fact that their presence or absence is no indication of the severity of the disease. Contrasted to the usually low temperature, however, the pulseis characteristically rapid, thin, and thready.

So uncertain are the symptoms of appendicitis in children that an acute catarrhal attack may subside within forty-eight hours and be unrecognized. However, if all of the cases of supposed acute indigestion in children were re-examined after the subsidence of all acute symptoms, in many instances a careful palpation would reveal a slight thickening and induration about the region of the appendix, and the true nature of the attacks.

But once the diagnosis is made, expectant treatment throws upon the physician a responsibility which he cannot afford to assume in the light of our present definite knowledge that appendicitis in children gives no adequate clinical evidences of the real anatomico-pathological conditions which exist in any given case.

The most severe type of abdominal pain is associated with intussusception, and while at first it may appear to be paroxysmal, yet by careful examination we find it to be continuous with paroxysmal exacerbations and accompanied with much straining. Prostration is early and extreme.

While absolute constipation is the rule, yet its absence should not prove misleading, because not uncommonly there is the passage of the feces below the point of obstruction or through the opening in an incomplete obstruction. This is just the point upon which so many fail in their diagnosis. Most of the textbooks emphasize obstinate constipation as a chief symptom, and when it does not exist the other symptoms are allowed to mislead. Early tympanites usually makes the demonstration of the typical smooth, slightly movable, very tender cylindrical tumor impossible.

Acute peritonitis is usually easy of recognition on account of its well defined symptoms, chief of which is the severe and diffused abdominal pain, which is increased by any motion, pressure, or jarring, and is associated with a swollen and tympanitic abdomen.

Strangulated hernia as a cause of abdominal pain is not difficult of detection, for the local signs are usually so well marked as to leave no chance for error, and the pain is of the same severe character as that observed in other obstructive conditions of the intestine.

Nephritic colic is not common and there is usually the distinct family history or that of previous attacks. As it usually follows active exercise, there is danger of mistaking it for pain due to excessive or unusual exercise involving the abdominal musculature, or from the strain of an unusually severe paroxysm of coughing. These latter must be thought of as possibilities in all acute pains in the abdomen.

The writer has observed several instances, recently, of overdistended bladder occurring during the course of various diseases, and being directly accountable for the occurrence of marked abdominal distress, extreme restlessness, and other unfavorable symptoms. It must be taken into account as a cause of acute abdominal distress and differentiated.

Lead colic would hardly be suspected as a cause of abdominal distress in children, and yet I recall an instance in which operative procedure was advised for an obscure intestinal condition which immediately improved when a susceptible child was removed from the home that was being decorated.

That acute rheumatic fever may have as its first manifestation, painful involvement of the abdominal musculature, there can be no doubt, and for a time this may prove misleading. The writer has reported several instances of this.* In differentiation we must consider the two types of influenza which may cause considerable abdominal distress in childhood, namely, the gastroenteric and the nervous types. These are readily detected by the history of infection and the somewhat characteristic associated symptoms, notably the temperature, which quite constantly exhibits a sharp, sudden rise to a considerable height with a decline within twenty-four hours and a persistence at the lowered point (usually about 100 degrees F.) for several days.

We have such an accurate means of diagnosis in the stomach tube in acute gastric dilatation that it seems hardly probable that this would be overlooked as a cause of marked abdominal distress, unless the two chief factors, operation and infection, were forgotten. In all of the infectious diseases of children the possible occurrence of this condition should be watched for.

Of the instances of chronic abdominal distress in children, the least suspected and yet a common cause, is chronic gastric dilatation. Why it is not more commonly detected, when we have such a simple means of diagnosis as the stomach tube, I do not know, but I have repeatedly demonstrated that it is far more commonly a cause of abdominal distress than has usually been suspected. The use of the tube, first as a means of diagnosis, and then as a method of treatment, brings about immediate relief and, after a protracted period, a cure.

Most of these cases are treated as instances of chronic indigestion, the dilatation being considered as the secondary causes when more often it is the primary.

Caseation of the mesenteric glands is a cause of chronic abdominal distress in children with frequent acute exacerbation, of the pain, but the associated symptoms and history make the detection somewhat easy, although repeated examinations may have to be made before any of the glands can be definitely felt.

Spinal caries as a cause of abdominal pain is usually referred to those parts of the abdomen which are supplied by the nerves nearest the site of the spinal lesion. Such pain or distress is worse at night and is persistent over long periods. It is not an uncommon thing for such a condition to be treated as depend-

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**American Journal of Obstetrics*, May, 1911.

ent upon an error in diet at the evening meal, but despite any regulation of the diet the distress persists.

The distress caused by abdominal tumors, either directly or by pressure, is of such late occurrence that the mass has usually been previously detected.

The borderline cases are the most important, because they are the most misleading on account of their indefinite symptomatology and the fact that this indefiniteness leads to a delayed diagnosis and inadequate treatment. Many times the undertaker gets the case that the surgeon should have had, because a clean cut, well defined clinical picture has been lacking, and the mild chronicity of the symptoms or their appearance at somewhat prolonged intervals has not sufficiently emphasized the real seriousness of the situation until it is too late.

Now, movable kidney is not a common occurrence in children, and yet I have seen some instances in which it was the only cause of considerable abdominal pain which occurred at intervals and, in one instance being right sided, was severe enough to mislead into the diagnosis of appendicitis.

In rare instances the presence of intestinal parasites has given rise to sudden, severe abdominal pain, but the more common occurrence is that of mild colicky pain, occurring at intervals over a considerable period. It is probably not the mere mechanical action of the worms that excites excessive peristalsis and causes the pain, but the presence of the large amount of mucus which is always associated with their irritation of the intestine, and large amounts of mucus invariably excite peristalsis.

In children of a peculiar type of nervousness, there is commonly the excitation of more or less severe colicky pain with the desire to defecate soon after the partaking of food, and while this may not occur after every meal, it does with enough persistency to give a strong clue to the diagnosis. It is the cases that exhibit excessive peristalsis high up in the bowel that are the most puzzling, because in these instances there is not the desire for or the occurrence of defecation, and persistent colic without defecation does not readily lead to a suspicion of its neurotic origin.

Catarrh of the small intestine and catarrh of the large intestine are the most common causes of abdominal distress, and they are practically indistinguishable from intestinal indigestion as far as being a cause of abdominal distress is concerned, unless a careful inspection is made of the stools. One inspection is not sufficient; there must be several if we are to obtain data that are of much value.

There is one thing, however, that we should remember; indigestion gives much more obscure symptoms than does intestinal catarrh.

I have left reference to this until these closing remarks because its importance must be left with you as a closing thought.

Far too often the child suffering with abdominal distress is regarded too lightly and is not subjected to anything more than the most superficial examination. We must admit that in the large majority of instances the cause of the distress is a mildly active one and yields more or less promptly to dietetic treatment. But there are a sufficient proportion of instances in which the parents are assured that intestinal indigestion, or the more popular misnomer, "bilious attacks," are the real cause, when, as a fact, the insufficient history taking and examination have been the cause of overlooking an acute or a chronic appendicitis. When confronted with the lay diagnosis of "bilious attacks" we should always be suspicious of chronic appendicitis. As has been previously stated, if all cases of supposed attacks of acute indigestion were examined after the subsidence of all of the symptoms, in many instances a careful palpation would reveal a slight thickening and induration about the region of the appendix and the true nature of the attacks would be discovered. It is not unusual for several such attacks to occur within a few months or years, and in each instance to be attributed to some error in diet. The value in recognizing the real significance of such attacks is in advising appropriate treatment, which is surgical intervention between the attacks. At any time the recurrence of the usually mild attack may be associated with such pathological changes as will make the chance of saving the child through an imperative operation far less than through the elective procedure.

Now you will recall that in the early part of this paper the writer referred to the fact, that the prominence given to appendicitis made its recognition comparatively easy; so easy in fact that it was often diagnosticated as the cause of symptoms which were due to other diseases. This statement, however, refers to the acute cases alone. The surgeon or the pediatrist acting as a consultant frequently sees these cases, but they do not see these borderline cases very often as consultants, but as individuals; because the symptomatology is not emphatic enough to demand immediate counsel unless the repeated mild attacks suddenly turn into acute symptoms. It is distinctly a problem for the general practitioner; it is he who sees these children during their mild attacks and can examine them in the intervals; it is he who has the confidence of the parents and can acquaint them with the possibilities, and advise in time such appropriate measures of relief as shall be instrumental in conserving the health and saving the lives of many little ones who are units that go to make up the morbidity and mortality of unrecognized disease.

42 Gates Avenue, Brooklyn.

FLATULENCE AND COLIC IN INFANCY

BY

GEORGE FREDERIC STILL, M.A., M.D.

Professor of Diseases of Children, Kings College, London; Physician for Diseases of Children, Kings College Hospital; Physician to the Hospital for Sick Children, Great Ormond Street, Honorary Member of the American Pediatric Society

How often we hear that a baby is "always crying," or has "the screaming convulsions," a complaint which at that age usually means colic from some cause or other. Colic in an infant is never to be regarded as a trivial symptom; it is easy enough for us to assure the parents that it is of no serious significance, and that it means simply flatulence, or a little curd in the stool, but those who have to be continually with the infant know best how extremely distressing is the uncontrollable and violent screaming which may last for an hour or more in spite of every effort to soothe the child. Moreover, colic in an infant is of consequence quite apart from the distress which it causes to the parents, for it will be found, as a rule, that the infant who screams much with colic is not gaining weight as he should do; moreover, in those who are predisposed by neurotic inheritance to convulsions, the abdominal discomfort which is evidenced by colic is very apt to give rise to a convulsive attack, and in very young and feeble infants colic may produce serious collapse. The attack of screaming is followed by grey pallor of the face with a pinched appearance of the nose, the extremities become blue and cold, the pulse becomes very feeble, and the infant sinks back exhausted.

There are three common causes of colic in infants-flatulence, constipation, and undigested food in the intestines; and even though it may be obvious from the history that one or other of these is present, it is well to examine the abdomen in every case, for valuable information is often obtained in this way. If the colic be due to flatulence, the treatment required will vary according to the position of the flatulence, it may be gastric, it may be intestinal; and a glance at the abdomen will show at once where the trouble is, the distended stomach may stand up in bold relief, or the colon or small intestine may be seen and felt to be distended with gas. Obviously it is useless to give enemata if the flatulence is of gastric origin; and equally useless to give gastric carminatives or to wash out the stomach if the colic is due to gas in the intestine. For instance, I saw in consultation a feeble infant aged eighteen days, who had apparently abdominal distress leading to convulsions and leaving the child blue and collapsed. One might have ordered some bromide as an enema offhand, but this would have been bad treatment, for inspection of the abdomen showed that the stomach was quite ballooned and tense with gas, whereas the intestine showed little or no distension; gastric lavage, with bicarbonate of soda solution (gr. iv to the ounce) was advised, and the infant made a good recovery.

It is remarkable how much distress and disturbance is produced in infants by flatulence. Gastric flatulence often leads to vomiting after every feed; the infant belches up the gas and food together, and in this way nutrition may suffer. It is the usual course of hiccough in infants, and hiccough, although usually of little importance, may become serious if it occurs often and lasts long in feeble infants, for it exhausts them considerably. When the gastric distension has been considered, I have seen it so hamper the respiration that the infant grunted with the difficulty of breathing and lay with the head retracted like a case of meningitis, evidently to give the muscles of respiration as free play as possible.

As in older children, gastric flatulence is also one of the causes of sleeplessness, and I think not an uncommon one in infants.

Again, on palpation of the abdomen, scybala may be distinctly felt in the colon, indicating the need for immediate use of an enema. In such cases an injection of warm olive oil, say half an ounce, followed by three or four ounces of warm soapy water, will often give immediate relief.

But palpation of the abdomen may reveal something more serious than flatulence. The possible presence of intussusception is never to be forgotten in the case of an infant who has suddenly started screaming without obvious cause, and it is no easy matter to exclude the possibility at once in some cases. More than once I have been called to an infant who has been screaming violently for an hour or more, and had evident pain in the abdomen, which with the presence of mucus and some vomiting, and even a trace of blood in the stool suggested that there might be an intussusception and it was only after the most careful watching and examination that one could make a diagnosis.

I was called to see a female infant aged four months; she was being fed on Savory and Moore's Food; two days previously at 10 p. m. she had suddenly begun to scream, and continued screaming for two hours. A hot bath had been given and an enema administered; the child was then sick, and at 8 a. m. the next morning, after vomiting green material, she passed some blood and mucus with only a trace of feces. Vomiting continued throughout the day and at 5 p. m. she again passed mucus stained with red blood, with little or no fecal matter. During the next night she was restless waking frequently and crying out with pain in the abdomen. I saw her about midday of the second day, *i. e.*, about thirty-eight hours after the onset of the attack, the bowels had been opened twice that day, the first stool consisted only of mucus with a trace of blood, the second of similar blood-stained mucus, and a trace of green feces. There had been only slight vomiting in the previous eighteen hours. The infant was small and pale, but did not look extremely ill; she lay for a few moments quiet and then began to scream in evident pain. Palpation of the abdomen was impossible, the infant held it rigid and screamed continuously as long as any attempt was made to feel the abdomen and at most other times. One was loathe to give an anesthetic, for the cessation of vomiting, and the appearance of fecal material in the last stool, and the duration of the attack in so young an infant without more evidence of extreme collapse, all seemed to tell against a diagnosis of intussusception, so I waited an hour or more to see if the infant would fall asleep, which she did eventually, when I was able to palpate the abdomen and failed to find any tumor. An enema of warm, olive oil with four ounces of soap and water brought away a large quantity of mucus, no fecal material; white wine whey was ordered for feeding, to alternate with very weak peptonized milk. The symptoms steadily diminished and the child made a good ec overy.

I suspect that occasionally, perhaps more often than we imagine, there really is an intussusception which undergoes spontaneous reduction. When one sees the slight intussusceptions which are so frequently found at autopsies on children, sometimes several in various parts of the small intestine, one can well suppose that occasionally a similar condition might occur during life; it is true that these intussusceptions of the dying are only in the small intestine and nearly always in the reverse direction to those met with clinically, but sometimes they are in the same direction, and it is noteworthy that like the ordinary clinical intussusception, they are much commoner in infants than in older children. It seems likely enough that in the small intestine with its smooth and even wall, an intussusception may occur more easily and reduce itself more easily than when it is of the ordinary ileo-cœcal or ileo-colic variety. The sacculated and thicker wall of the large intestine may tend to prevent the occurrence and spontaneous reduction of an intussusception, but even here there is no doubt that spontaneous reduction does occur sometimes.

In a child aged 2 4-12 under my care at King's College Hospital, the typical symptoms of intussusception, including an obvious sausage-shaped tumor, has occurred three times at intervals of eight months, and ten days. On the first two occasions the severe symptoms of vomiting, colic, constipation, and passage of blood and mucus, all passed off and the tumor disappeared without surgical interference, although on the second occasion the child was so extremely bad that the surgeon decided against operation only because the intussusception had been present two days, and there seemed no hope that the child would stand the severe shock of a bowel resection. On the third occasion acute peritonitis occurred with the intussusception, and the child died; a large intussusception was found with its layers only slightly adherent, so that it had probably only occurred quite recently. The case was evidently one of relapsing intussusception.

My colleague, Mr. Kellock, tells me of an infant upon whom he operated at Great Ormond Street Hospital for the same affection. The usual symptoms had been present, including the tumor, but on opening the abdomen, the lower part of the ileum was found to be much congested, as if it had recently been constricted by an intussusception, which had already disappeared.

I do not quote these cases as any argument in favor of postponing operation where there is clear evidence of intussusception, as a general rule delay in such cases is most dangerous, but I mention them because they support, I think, the view that slighter intussusception perhaps of the ileic variety may occasionally be the explanation of severe screaming in an infant who is vomiting and passing blood and mucus with little or no fecal matter, and yet gradually recovers.

Any screaming in an infant which suggests abdominal pain calls for examination of the stools. A stool with lumps of white curd in it or a green stool with much mucus, may point to indigestion as the cause of colic; there is a particularly close relation between abdominal pain and the presence of much mucous in the stools. I think the pain in such cases is probably due to the mechanical difficulty of driving the tenacious viscid mucus along the intestine, which consequently makes violent efforts at peristalsis, and so produces the abdominal pain.

Occasionally the stools may reveal some gross fault of diet. I was puzzled by an infant of twelve months with symptoms of intestinal disturbance without apparently sufficient cause, but a few hours later examination of the stools cleared up the mystery of demonstrating the pips of red currants which the nursery maid had given surreptitiously, in addition to further evidence to nursery carelessness in the shape of a collar stud, two solid knobs out of the baby's rattle, and a long hair.

Again the presence of gaseous fermentation with resulting flatulence and colic of the intestine, may sometimes be evident in the frothy character of the stools. The hardness and dryness of the stools which, as I have sometimes been told, "rattle like marbles in the chamber," may also account sufficiently for colic.

Investigation of the diet will be necessary in every case; abdominal pain in infants is usually the result of some fault in the method of feeding, or in the food itself; too large feeds are often being given, with the result that the persistently over-distended stomach falls into a state of chronic catarrh, if indeed this be the correct interpretation of the flatulence which so often marks the dyspepsia of these cases. Too frequent feeding is another common cause for colic, and this applies to breast-feeding quite as much as to hand-feeding. Indeed, apart from the over-taxing of digestion and resulting flatulence and dyspepsia which results from too frequent feeding, whether with substitute feeding or with breast-milk, there is in the case of the latter a special reason why this fault should produce colic, any excessive shortening of the intervals between milking whether in the cow or in the woman is found to increase the proportion of curd in the milk.

Too much carbohydrate is a fruitful source of flatulence and colic. There is not sufficient attention paid to the proportion of sugar in infant feeding, "put some sugar in the feeds," is not sufficient direction to a mother or nurse, who very naturally puts in as much as she thinks will sweeten the food sufficiently to gratify the infant's taste; as if it mattered not the least whether the food contained five per cent. or ten per cent. of sugar. Fortunately, on the whole, the tendency is to add less sugar than nature allows. Human milk contains seven per cent. of sugar. Cow's milk contains four per cent. before it is diluted; a very ordinary addition to a mixture of cow's milk and water is a teaspoonful of sugar, a level teaspoonful of which, in three ounces of fluid, means the addition of five per cent. of sugar to the fluid, so that with any dilution of cow's milk, there is not likely to be much excess of sugar, if only one teaspoonful is added; but if a heaped teaspoonful or more is added, the allowable maximum of seven per cent. will be exceeded.

Far more often the excess of carbohydrate is being given in the form of the products of malting. Many of the best known patent foods, which contain no starch whatever, are open to objection on this account. The Allenbury Foods, Nos. 1 and 2, for instance, contain when diluted according to the maker's directions, 10 to 11 per cent. of carbohydrate; Horlick's Malted Milk, as given, often contains about 12 per cent.; Mellin's Food, which is intended to be an addition to milk, consists almost entirely of soluble carbohydrates (about 70 per cent.), and therefore, although starch-free, too much of it may cause flatulence and colic; used in accordance with the maker's directions, seven heaped teaspoonfuls to seven and one-half ounces of milk, and two and one-half ounces of water, for an infant of six months and over, the total proportion of carbohydrate in the mixture, if the heaped spoon contains, as I found it to do, 85 grains, would be 12.5 per cent.

If a carbohydrate food be used, whether it consists of soluble carbohydrate like Mellin's or of insoluble carbohydrate or starch, as in so many patent foods, allowance ought to be made for this in calculating the amount of sugar, if any, to be added. In the case of Mellin's Food, it is safer to add no sugar, for even with one level teaspoonful of Mellin's in a three-ounce feed the percentage of carbohydrate will be so nearly correct that any further addition is almost certain to mean excess.

Experience shows that there are some infants who will not only tolerate but thrive upon a food containing sugar or other carbohydrate in a proportion somewhat above that present in human milk, but, none the less, to give an infant a food which contains more than seven per cent. of carbohydrate is always to run a risk of slimy, loose stools with flatulence and colic; certainly one of the common causes of pain in the abdomen in infants is the use of starch-containing foods, which set up fermentation and so produce either flatulence or a mucous catarrh in the intestines. I have already considered these foods and will only say that in some infants the merest trace of starch in the food seems sufficient to cause abnormal discomfort, and for this reason even barley water must be looked upon with suspicion when the cause of colic is in question.

Too much fat in the food is no doubt a much less common cause of abdominal pain in infancy than excess of carbohydrate, but I have seen cases which strongly suggested that the pain was due to excessive addition of cream, and where breast milk has caused screaming, the proportion of fat in it has sometimes been found unusually high. However, this may be, there is no doubt that cream, even when carefully proportioned, is very apt to cause digestive disturbance, and when colic in infants is due to indigestion it is often wise to diminish cream or omit it altogether for a time.

Insufficient dilution of milk is a common fault in infant feeding, and the undigested curd which results therefrom is one of the causes of abdominal pain and screaming. Even with breast feeding, the proportion of curd may be higher than the infant can digest. I have found, when breast milk was disagreeing, the proteid of human milk as high as three per cent. instead of the usual bare two per cent., and it can be understood therefore why the administration of some plain water just before suckling sometimes relieves colic due to this cause.

Gross faults in the diet may require correction; the infant who at six months old is having odd scraps of "unconsidered trifles" at its parent's meals, is likely to have abdominal pain. I sometimes find that bananas are being given to quite young infants, no doubt in consequence of the popular fallacy that bananas are easily digestible; whatever theory may suggest, experience shows that bananas are very badly digested by infants and young children, and it is no matter for surprise if an infant cries with abdominal pains when such food is allowed. As we all know there are infants who will take and apparently suffer no ill effects from food which causes serious digestive disturbance in most infants, but this is no argument for sanctioning such food for routine use.

Lastly, I must point out that although colic in infants is a gastro-intestinal disorder in a very large majority of cases, it is possible that occasionally it may be of quite different causation. In examining the bodies of infants I have occasionally found small concretions in the pelvis of the kidney, the size of millet seed or slightly larger, and any one who frequently examines the diapers of infants must be familiar with the deposits of uric acid which are sometimes to be found on them.

Treatment —In considering the causes of abdominal pain in infants I have indicated the lines upon which treatment must proceed; in the majority of cases some fault in feeding will require correction, but here I must emphasize a point of some practical importance; a baby's digestion, once upset by feeding unsuitable for its age, is often not to be won back to better ways by simply substituting such feeding as would be correct for a healthy infant at the same age. It is usually necessary to give food which is considerably weaker in strength and less in quantity than would naturally be given to an infant of that age; and if milk is being used the screaming will generally be stopped most quickly by giving a very dilute peptonized milk without added cream for a few days. I have often found that the mere discontinuance of barley water causes rapid diminution of the flatulence and colic, and in the slighter cases the addition of sodium citrate (three grains in a drachm of water) to each feed is sometimes sufficient.

I must not repeat here what I have said elsewhere on the methods of overcoming curd-indigestion, and on the proper adaptation of milk to the needs of an infant but it must be remembered that the proper application of the general principles of infant feeding constitutes the most important part in the prevention and treatment of colic in infants.

There can be no doubt of the value of the ordinary carminatives for abdominal pain due to gastric flatulence. I am fond of the Tinct. Carminative, of which one or two minims can be given in an alkaline mixture, for instance, Sodium Bicarb., gr. ij. Tinct. Carminative (B. P. C.) mj, Glycerine mv, Aq. ad 7j, three or four times a day, ten minutes before a feed; or one minim of sal volatile may be substituted for the Tinct. Carminative, or a minim of Spirit. Ammon. Foetidus may be used. The carbonate of magnesium may do more good than the bicarbonate of soda in these cases, two grains of either making a suitable dose for an infant up to a year old, or the sulpho-carbolate of soda (gr. i-ij according to the age of the infant), may be used in the hope that it may exercise some antiseptic effect in preventing fermentation. Bismuth is, I think, distinctly valuable if gastric flatulence is very constant, three or four grains of the carbonate with two grains of bicarbonate of soda suspended by a couple of grains of compound tragacanth powder in a drachm of dill-water makes a suitable prescription, but bismuth is only to be used for a few days to relieve the abdominal pain very frequent; its continued administration is only likely to aggravate the constipation which so often accompanies and increases the distress.

Nux vomica is a rational therapeutic in cases where the stomach seems to become so distended with gas that it has difficulty in expelling it, and as a matter of experienc I think it is distinctly useful in doses of quarter of a minim for an infant up to six months and a half a minim from six months to one year.

There is a small point which may be worth mentioning in connection with prescribing for these cases of flatulent colic in infancy; it applies also, only perhaps in less degree, to children past the age of infancy, namely, the choice of a sweetening agent. It is, I think, well to avoid syrups as much as possible; the amount of sugar contained in the syrup, though small, may be quite enough to favor flatulence in an infant who already has flatulence and colic from inability to digest the carbohydrate in the food; glycerine is not open to this objection, and chloroform-water or the spirit of chloroform (mi-ij), used with or without glycerine, has the advantage that it not only sweetens but also exerts some anti-fermentative action in the stomach.

But now, what is to be done when the attack of colic is on, and the baby screaming with pain and drawing his legs up in evident abdominal distress? By frequently changing the infant's position, letting him be for a minute or two on his stomach, over the nurse's shoulder, then on his back upon her lap, then in the sitting position, and so on, the eructation of wind may be assisted, or the application of hot flannels or a piece of spongiopiline, wrung out of hot water, to the abdomen may give temporary relief. For gastric flatulence a drop of sal volatile, or five to ten drops of brandy, according to the age, in a teaspoonful of warm water, or, better, dill-water, may ease the distress. I have often found salad oil useful in these cases, about 20 drops with half a teaspoonful of warm water and one drop of sal volatile. If a feed is to be given, sherry whey is worth trying; it suits some of these cases excellently, having a very definite carminative effect. Whether there is constipation or not, a warm anema of plain water or of warm olive oil, followed by four to six ounces of water, has often a remarkable effect in rapidly soothing the infant. Lastly, and I put it last because I think it is best avoided, if possible, opium in some form may be not only permissible but advisable, when the infant has been screaming for a long time, perhaps a hour or more, for the resulting exhaustion may be serious in a feeble infant. Dover's Powder, in doses of one-eighth grain at three months, one-quarter grain at six months, one-half grain at one year, is perhaps the most convenient and effectual form.

SOCIETY TRANSACTIONS

THE NEW ENGLAND PEDIATRIC SOCIETY.

The nineteenth meeting of the New England Pediatric Society was held on January 27th, 1912, in the Boston Medical Library. The following papers were read:

"The Importance of Milk Stations in Reducing City Infant Mortality," by A. A. Howard, M. D., Boston. "Observations on the Intensity and Acidity of the Urine," by Doctor King. "Suppurative Pericarditis in Infancy," by Drs. Barkan and Lucas. "Experimental Study of Measles in Monkeys," by Drs. Lucas and Prizer.

Dr. Arthur A. Howard read a paper entitled "**The Importance of Milk Stations in Reducing City Infant Mortality,**" in which he described the work of the Milk and Baby Hygiene Association.

Dr. Rotch: Dr. Howard's paper.

Dr. Howard is engaged in an exceedingly valuable work, and he is managing it admirably. His work, connected with the food and hygiene of healthy babies, will go hand in hand with what the hospitals have been endeavoring to carry out in connection with prophylaxis.

Dr. Talbot: Dr. Howard's paper.

I was very much interested in what Dr. Howard said about breast feeding and the increasing number of mothers who nurse their babies. I was told a short time ago that the surgeons in the Massachusetts General Hospital, some thirty years ago, used to ask in their histories, of persons who were going under operation, whether they had been breast-fed or not as they considered those that were, a better surgical risk than those who were not. The work of the Milk and Baby Hygiene Association is very valuable from the out-patient department point of view because it gives the out-patient physicians opportunity to study and treat sick babies which would otherwise be taken up with the care of well babies.

Dr. Emerson: Dr. Howard's paper.

I think this work for infants so successfully carried on by the Milk and Hygiene Committee should be extended in a similar way to children up to fourteen years of age who are underweight and poorly nourished. Such children at present are brought to the clinic and mixed with sick patients and we have to spend a large part of our time in giving them instructions in hygiene and diet which could be given to them with a great economy of time and energy as a class instead of individually. Such children could be referred by the school nurses, by the Milk and Hygiene nurses and from the clinics, and report once a week to be weighed, their diet lists inspected and the instruction followed up with the parents.

Dr. Eastman: Dr. Howard's paper.

About one and one-half years ago the Springfield Baby Feeding Association was established very much along the lines of this Boston Institution, and as the result of careful study after one and one-half years we found that the most important part of the work is the instructive work in relation to the care and feeding of the babies. Quite recently various organizations have gotten together with the view of doing something in regard to improving the housing conditions, and the first important point which they discovered is the fact that the State laws, as they exist at present, simply apply to the fire safety of the houses; there is nothing in the State laws which in any way can compel a builder to look out for the interests of the health of his tenants as to fresh air, sunlight and general hygiene. Until that State law is changed any laws which individual cities may try to put through are absolutely useless. On account of this a movement has been started by the Massachusetts Civic League to do something about that law, and it seems to me that this is a line of work which should go hand in hand with that of the milk stations. It is certainly a very valuable factor in the welfare of the infant that he should have a chance to have plenty of air and sunlight and be housed properly. An interesting fact came out recently in connection with the work of the probation officer in Springfield in connection with the youthful criminals. He made a chart of the city and there were three distinct sections where the largest proportion of the youthful criminals resided, these sections being the three crowded slum districts of the city where the housing conditions were the poorest. This whole work, it seems to me, is very extensive and very broad in its scope.

Dr. Emmons: Dr. Howard's paper.

The members of the society may be interested to hear that within three weeks a meeting was held at the South End House to organize the pre-natal care in Boston, which Dr. Howard has mentioned, as being a part of his society's plan. There were something like fourteen different hospitals and institutions represented. This work was brought forward largely by the Women's Municipal League, who demonstrated its value by taking care of about one thousand women among whom there were forty cases of threatened eclampsia. No case, however, developed into eclampsia owing to the prompt treatment which was received, the patient being sent immediately to the physician or hospital. The meeting was held with the idea of organizing the work, and it was voted to draw up rules in order to decide upon a standard which all these institutions might adopt in order that the various hospitals, settlement houses, and nursing associations should co-operate in their work and not cover the same territory twice. It was shown that by this means the infants' work could be much aided by the instruction which the mothers received from the nurses who became friends of the family and could thus give advice regarding the care of the infants and other children who were already in the household. In some instances it was found that the mothers so instructed were already seeking advice as to the care of those other children.

Dr. Howard. in closing.

I was glad to have Dr. Rotch point out the fact that the withdrawal of well babies from the clinic gives the Out-Patient Physician more time to devote to the sick baby just as the conference physician is able to give all his attention to the well baby. Clinical and prophylactic work do not clash, but as Dr. Rotch has said "work together" for greater efficiency.

I was very much interested in Dr. Emmons' remarks concerning pre-natal work. I have already expressed my views as to the importance of starting the supervision of the infant with the pre-natal period.

Dr. Emerson's remarks about the conferences for older infants and children is in accord with the attempt we are already making to establish a department which will take charge of babies whenever they are dropped by the association, the baby being cared for in a semi-supervised manner where they do not require the attention of a physician or nurse constantly or during early infancy. This work I believe should form an important part of the continuous chain safeguarding the child's welfare.

Dr. King's paper.

Dr. King of Fall River, presented a paper entitled "OBSERVATIONS ON THE INTENSITY AND ACIDITY OF THE URINE" in which he described the methods used by Dr. Lawrence J. Henderson of the Harvard Medical School by which the acidity was determined by colorimetric methods. The concentration of the hydrogen Ions was determined in this manner. It was found in certain cases of acute disease that the acidity of the urine was much more marked than in health and also that in certain cases of enuresis there was a very high acidity. When this acidity was neutralized by small doses of sodium citrate the symptoms of enuresis were markedly improved, and in certain cases cured.

Dr. Richard M. Smith: Dr. King's paper.

I have been very much interested in following this work of Dr. King's, and I should like to report an experience of my own. These cases of eneuresis cause a great deal of trouble, as we all know. A patient of mine, who has been under my care for over a year, a boy of three and one-half years, had been wetting the bed practically every night. For three or four months I had tried all the things I knew how to try without any cessation of the bedwetting, and I finally told the mother that we would have to give it up until the boy was older. That was about six weeks ago. Three weeks ago I secured a specimen of urine and found that it was highly acid. I started the boy on potassium citrate, four grains three times daily. The mother told me today that after taking the medicine for ten days the boy stopped wetting the bed, and for the past week, even without the medicine, he has not wet at all. I have had another case, with acid urine, where, after the giving of the potassium citrate, the condition was relieved, but whether it is going to continue or not, I cannot say. It seems to me that there is another important point which Dr. King only incidentally referred to, and that is, the relation of this question of acid urine to acute nephritis. This matter has been brought very notably to our attention by the work of Dr. Fishèr. It seems to me that this method of finding acid in the circulation and in the body fluids is going to lead to rather definite confirmation of Dr. Fisher's contentions, in which case a tremendous advance in the study of nephritis has been made, or else it is going to disprove his hypotheses.

Dr. Praino: Dr. King's paper.

There is one point I should like to bring out with regard to acidity of the urine as applied to infants. I have noticed that, when a child was getting a modified milk containing a large percentage of sugar, the urine was highly acid, and that the diapers saturated with urine, if allowed to stay on too long, produced excoriations and superficial ulcerations which resisted treatment until the percentage of sugar was lowered. Then in diabetes mellitus we get a highly acid urine too. At present I have two cases of diabetes mellitus under my care, and I keep the acidity of the urine low by giving one gram of sodium bicarbonate three times a day.

Dr. Emerson: Dr. King's paper.

I have listened to Dr. King's paper with much interest, especially as he suggests so simple a remedy for this often times obstinate affection. Last year I had six children with this affection report together at the clinic once a week. None of the usual remedies or directions had apparently any effect whatever on any one of them although tried at various periods of time from two to five years. Four, however, made a complete recovery on attaining a normal weight by proper hygiene and diet with no drugs at all. As Dr. King's paper suggests, a return to a normal acidity on a return to a normal weight may explain their recovery.

Dr. Eastman: Dr. King's paper.

I would like to ask Dr. King if he has applied this method to his cases of cyclic vomiting. I have had a case this last year of cyclic vomiting which proved to be a case of chronic appendicitis, and she had another attack of vomiting four or five months after the operation. At no time has there been any acetone or diacetic acid in the urine, but almost all the time the urine is very highly acid and has been controlled with large doses of bicarbonate of soda.

Dr. Emmons: Dr. King's paper.

In speaking of eneuresis there is one anatomical peculiarity, or anomaly, which seems to me worth while mentioning in this connection. Undoubtedly most of you know of it. The urethra, ordinarily coming down to the bladder, may have a division or branch which enters the urethra below the sphincter, with resulting involuntary leakage of urine. This is one of the rare anomalies, and in such cases you have eneuresis in spite of any medical treatment.

Dr. King:

These cases which I took for study and treatment came to the ordinary hospital Out-patient clinic, and I made no selection until the cases of eneuresis appeared, and those I followed only long enough to learn that you can get a definite cure of symptoms by the use of potassium citrate. A permanent cure can probably only be obtained by relieving the causes of high acidity—an excessive protein diet, and faulty metabolism being the chief factors.

(answer to Dr. Eastman.)

In the cases with high fever, the urine was highly acid and gradually decreased as the fever disappeared and this condition also accompanied cases of faulty metabolism so I believe the same would exist in the case which you cited, although the alkaline digestive wave might alter conditions somewhat.

Dr. King:

I do not know. Dr. Henderson was to take up that part of the discussion and describe his method of analysis and all the details of making up his solutions. However, I do not believe one could tell in that way, as the colors formed do not remain constant for any length of time unsealed and, in addition, the method is one of relative intensity of color and a standard scale for comparison would be rather difficult to make.

Abstract on Acute Suppurative Pericarditis in Infancy, by Hans Barkan, M. D. and William Palmer Lucas, M. D.—The writers reported a very unusual case of suppurative pericarditis in an infant five months old. The ususual features of the case were that it followed none of the ordinary infectious diseases which usually precede suppurative pericarditis in infants. It was evidently either a primary infection or a secondary infection from the sub-acute intestinal infection or from the eczema, from which the child was suffering, but from which it had been improving. They were able to find no cases of primary infection of pericardium in infants from the review of recent literature. The article appeared in full in the *Boston Medical and Surgical Journal* for March 21, 1912.

Dr. Rotch: Dr. Burkan's paper.

Dr. Burkan has brought up a very important subject and I would especially draw attention to the practical use of the Roentgen ray in this class of cases. The younger the individual the more important it is to determine whether a pericardial effusion is present and then to not delay paracentesis too long, for without any perceptible increase in the general symptoms sudden death at times occurs. Where a practitioner cannot have recourse to the Roentgen ray to aid him in his diagnosis, as frequently happens, it is well to bear certain facts concerning the differential diagnosis in mind. In certain cases the physical signs of a dilated heart and a pericardial effusion are almost identical with the exception that as a rule you do not have the enlarged heart intruding upon the fifth right interspace more than 2 or 3 c.m.; on the other hand, in a great majority of cases, the effusion, when present, would be found there. It is very unusual for pericardial adhesions to be present in young infants and, therefore, the topography of the differential diagnosis between a dilated heart and a pericardial effusion is much more readily made out than at a later period when the lines of percussion are obscured by irregular adhesions. By a series of laboratory experiments with melted cocoa butter, which I have made in the pericardium in quite a large number of infants, I determined that the heart is not floated up by the effusion but that it is seemingly so. This apparent change of position of the impulse of the heart is not produced by the change of position of the heart, itself, but by the ordinary impulse being obscured by the effusion. Just above the point of the usual impulse of the heart and close to the left edge of the sternum the effusion forms a very thin layer so that the impluse of the ventricle is perceptible at this point and thus simulates the apex impulse. It follows from what I have just said that the safest point for pracentesis of the pericardium is in the fifth right interspace.

Abstract on an Experimental Study of Measles in Monkeys, by William Palmer Lucas, M. D. and Edward Lewis Prizer, M. D.—In this paper the writers reviewed the recent experimentation with measles, and concluded by giving their findings in the blood of three monkeys, successfully inoculated for measles. They concluded that during the pre-eruptive stage of the disease there is a leucopenia involving the polymorphonuclear neutrophils, the lymphocytes and the large mononuclear leucocytes. This leucopenis dedoləʌs in from five to ten days after inoculation and may be preceded by a transient lymphocytic and large mononuclear leucocytosis, which is probably lacking or only poorly developed in the severe form of the reaction but is strongly developed in less severe cases.

They agreed with the findings of Anderson and Goldberger as to the temperature and infectivity of blood. They also brought out the fact that Koplik spots were also found in monkeys, this being the first reported finding of Koplik spots in monkeys. The article appeared in full in the *Journal of Medical Research*, Vol. xxvi, No. I, April, 1912.

Dr. English: Dr. Preiser's paper.

With regard to the presence of Koplik's spots which Dr. Preiser and Dr. Lucas discovered, there seemed to be no question about their being the typical spots found in human beings. They were in considerable numbers and showed all the characteristics of those in human beings, that is, rose-reddish spots with bluish-white specks in the centre. They had a normal monkey there as a control and the mucous membranes of the three monkeys were constantly looked over for areas of stomatitis that might simulate Koplik's spots, but they confirmed in every way the spots in children and adults, and there is no question but that they were Koplik's spots. In fact, Dr. Lucas, after talking with Dr. Place, asked me to see them before they had disappeared, and I agreed perfectly with their observations. It is very striking that these spots appeared in the monkeys at exactly the same time they do in human beings, ten or eleven days after exposure, and it seems to bear out the belief that in measles, in marked contrast to scarlet fever, we have a cycle of development. In scarlet fever, without any question there is a marked difference in the incubation period, a tremendous difference in the opinion of different men concerning this point. This work makes it possible to prove points about which there was much difference of opinion in regard to the stage of infection of human beings, and proves that measles is contagious from the very beginning of the disease.

AMERICAN PEDIATRIC SOCIETY

De. Howard Cholda Carpenter and Dr. D. J. Claxton Gittings Of Philadelphia read a paper entitled:

The Coagulation Time of Blood in Infancy and Childhood.—The clinical methods employed by the Authors in estimating the coagulation time of the blood of infants and children, were the wire-loop method of Biffi, and the Solis-Cohen modification of Milan's method. One hundred and ninety-two examinations were made on one hindred and seventy-six patients. Thirty-five healthy children gave an average coagulation time of 9.4 minutes. According to their results, there was no noticeable difference in the coagulation time between the write and colored races in the early years of life. In the individual disease the maximum and minimum figures showed a wide variation. The various diseases showed average differences which could hardly be considered of any real importance. In their opinion average differences of one, two or three minutes can hardly be considered as of any practical importance especially when the limitations and variations of the great majority of the sl called clinical methods are considered. They believe the determination of the firmness and texture of the clot to be important. For this reason it would seem that immersion in water is a more rigid test than that applied by most of the other clinical methods and to that estent, at least, the method originated by Biffi presents distinct and practical advantages.

Epidemic Sorethroat.—The epidemic of septic sore throat, which occurred in Baltimore during February and March of this year, was reported briefly by Ruhrah for the American Pediatric Society, at the Hot Springs meeting.

Epidemics of this disease have been noted abroad, particularly by the English, but severe epidemics have occurred in other places, notably one in Christiania, in 1908. The disease was first reported in America from Boston, where a severe epidemic occurred in 1911. This epidemic was of unusual severity, affected adults, and was finally traced to one of the largest and best controlled dairies supplying milk in and about Boston. Since that time the disease has appeared in several American cities, notably Chicago and Baltimore. The Baltimore epidemic began in January, increased throughout February, particularly in the third and fourth weeks, and in the first two weeks of March. It stopped promptly after the pasteurization of the milk from the suspected dairy. A very large proportion of the cases occurred in families taking milk from one of the largest and best dairies, and after the disease was started it was apparently transmitted directly from one person to another.

The clinical history of the disease is very striking, and in the Baltimore epidemic most of the cases occurred in children. The attack began with fever and sore throat, and usually more or less severe prostration, and after a day or two there was acute swelling of the cervical lymph nodes; in the average case this persisted from one to three weeks and then gradually disappeared without suppuration. In many cases there was very high fever and often convulsions, and in some there was a general septicemia. In a number of cases there was a peritonitis which always proved fatal. There were numerous complications in almost all of the cases, bronchitis, otitis media, involvement of the accessory sinuses, irregular swellings and edema, abscesses, skin infections, and numerous other things were observed.

The organism causing the disease was easily obtained, either from the pus from the ears or from the throat, or from blood cultures in the cases of septicemia. In the smears the organism appeared as a diplococcus with a distinct capsule. When cultivated it took the form of a streptococcus in short chains, in which the diplococcus arrangement was preserved. In some cases the pneumococcus was also noted.

RETROSPECT OF CURRENT PEDIATRIC LITERATURE.

Infectious Diseases

Under the Charge of
ST. GEO. T. GRINNAN, M. D.
Chief of Clinic in Practice of Medicine, Medical College of Virginia; Visiting Pediatrist, Memorial Hospital, Richmond, Va.

Tuberculosis of Bovine Origin in Children, and Its Prevention.—The difference between tubercle bacilli from bovine and human sources is gradually obtaining recognition.

In 1896 Theobald Smith was able to demonstrate very essential difference between the two types of tubercle bacilli.

Dr. Wm. H. Peters, (*The Lancet-Clinic*, July 1, 1911), calls attention to the fact that the difference is constant in one fact only, viz: amount and rapidity of growth in early cultures.

The human type grows very luxuriantly from the startupon Dorset's glycerine-egg medium. The individual colonies are large and raised, and the growth is crumpled, verrucose, granular and hard to divide.

The bovine type grows sparsely or not at all in the first few generations upon this medium. The growth is thin, moist and can be easily divided. Many observations show that the human tubercle bacilli grew sparsely and produced a thin veil which was sometimes absent.

As to virulence, any virus that causes progressive generalized tuberculosis in the rabbit is of the bovine type The human type only causes localized lesions in the lungs or kidneys and as a rule these rabbits gain in weight and do not die from tuberculosis.

Viruses of the bovine type cause a progressive generalized tuberculosis in the calf usually resulting in the death of the animal while the human type only causes a localized tuberculosis or extension to neighboring lymph nodes.

To the question what proportion of tuberculous infection is bovine in origin? We have various answers. The British Tuberculosis Commission recently reported that a very considerable amount of diseases and loss of life, especially among the young must be attributed to the consumption of infected cow's milk.

As pointed out by Dr. Peters, the statistics gathered by Park and Krumwiede in their collected studies from the Research Laboratory in New York City gives the following statement:

Of 35 cases of cervical tuberculous adinitis in children, under five years of age 20 (57 per cent.) are caused by bovine type of tubercle bacillus. Out of 53 cases in children between the ages of five and sixteen years 20 (or 37 per cent.) were the result of bovine infection.

Of 19 cases of abdominal tuberculosis in children under five years 13 (68 per cent.) were caused by the bovine type, and in children between five and sixteen years 7 out of 14 cases (50 per cent.) were due to the same infection.

Generalized tuberculosis in children under five years was caused by the bovine type in 5 of 33 cases (15 per cent.)

Of 1042 cases recovered 101 (9.06 per cent.) proved to be of bovine origin.

This is only the beginning of an interesting study propogated by Park and Krumwiede—while the number of cases reported is rather small the results are very suggestive.

Virulent tubercle bacilli were found by Hess in 19 among 107 specimens (16 per cent.) of milk retailed in New York City. In the test of the Washington supply of milk by Anderson 6.72 per cent. of the samples were found to contain tubercle bacilli. Samples of milk in Berlin examined by Kemper were found to contain tubercle bacilli in 28 per cent. of the cases.

These figures show without doubt that bovine tuberculosis is a menace to children who are more susceptible than adults.

The great value of certified milk is its educational features, teaching the people to appreciate clean milk and demand a better supply. It gives a good basis for comparison.

Testing cows twice a year with tuberculin entails a loss to the producer above two per cent. under the most ideal conditions. We are brought thus to face the problem of boiling cow's milk. Much work that has been done recently has pointed to the fact that boiling does not injure the digestibility of cow's milk as has been supposed. Pastuerization or actual boiling the milk is a safer method to persue where the milk is not certified.

Heredity and Tuberculosis.—Dr. G. B. Sweeny, (*New York Medical Journal*, Nov. 4, 1911), contributes an interesting article on the question of heredity and tuberculosis. His answer is that the disease is not inherited, but the constitutional tendency is inherited. In the olden time the term scrofulous diathesis was used to convey the impression of heredity.

Dr. Sweeny points to the fect that the most universal fact of the organic world is that like produces like—that offsprings are like parents. Galton announced a numerical law of inheritance. The Galton law of hereditary is that half of the characteristics of a child are received from the parents, one fourth from their four grand parents, one eighth from their eight great grand parents, and so on to remote ancestry. The other law is that of "recession toward mediocrity." This law is of great use in explaining apparent deviations or incongruities. It means, however, that when parents deviate considerably from the population in which they form a part their offspring will tend to return toward an average.

Every infectious disease we admit is brought about by pathogenic microorganisms within the system. The chance of germineal infection through the spermatozoon is so absurdly minute as to be a negative quantity. Some families are notoriously prone to certain infections. This is especially the same with tuberculosis. Cases of immunity are equally well known. One family was noted in which the eleven children were immune to all diseases except measles. This immunity is not confined to the human family but some of the lowly neighbors exhibit the same characteristics of immunity. Metchnikoff points out the fact that blood plasma of the frog is inimical to the authrax bacillus. The frog conveys the same immunity against the cholera vibrio, destroying the vibrio in the process of phagocytosis. Alligators resist enormous doses of various bacteria, such as authrax bacillus, that of human tuberculosis or coccobacillus of typhoid fever. The classic example of immunity is that of the fowl against authrax. The pigeon is immune to the bacillus of human tuberculosis.

In natural immunity the actual protective agent is the blood cell which in a healthy organisn is amply able to attack and destroy the intruding enemy. Dr. Sweeny says concerning what is inherited: "Returning to the germ which has received an inheritance of parental attributes, we find it not only endowed with certain inherent defensive qualities, but often freed from any deleterious factors existent within one or other parent. In one way only may this be accounted for, and that is that at the time of fusion of the nuclein from the spermatozoon and that of the ovum, a preponderance of chromatin from the most vigorous, healthy parent completely obliterates a somewhat vitiated element contributed by the other parent. In this manner only can we account for the variation orginating in a given generation, where physical and mental characteristics, which we would naturally expect to be transmitted are submerged completely and for all time. But unfortunately all malevolent inheritance is not thus easily disposed of. It is to the consideration of this problem that we may now turn our attention. Indeed this is the very ground upon which the whole question of heredity in tuberculosis rests. But first, let us amplify what we stated earlier in this paper: That whatever disease or infection is conveyed to the embryo after the fusion of the parental germs, cannot be safeguarded as inherited. Disease transmitted through the fetal cord as in variola; syphilis conveyed to the embryo in utero by the father, the mother escaping the infection; these and many more instances of intrauterine infection can in no sense be regarded as inherited; no more so than that which develops later in the child as it lies in its crib or mingles with its playmates. Heredity is bound up within the walls of the spermatozoon and the ovum. It reaches the limits of its zone when these two germs meet and mingle their elements together. In the same grave with other misconceptions let us bury those meaningless terms with which we seek to identify the tuberculous type. In the olden time it was the thin skinned, fine haired subject. Now we hear more of the hollow chested, anaemic victim; and who of us have not seen a myriad of this same type who never succumbed to tuberculosis and rounded out their allotted life span in the enjoyment of health? No more in keeping with this idea are those in whom we find tuberculosis attacking the ruddy, full-chested subject who often yields to the disease with surprising promptitude." The question is one of hereditary immunity or hereditary susceptibility. This has been much studied in connection with anaphylaxis. Quoting Dr. Sweeny again we find that immunity may be transferred and lack of immunity be transferred. "The tuberculous type is represented by the non-resistant germ which springs into being when the parental elements unite to form a new creature. It is immaterial whether we consider the behavior of this primary cell which has just been launched upon the sea of human existence, when brought into contact with the tubercle bacillus; or whether we contemplate its more highly polished progeny, as found in the cells of various organs of the human body.

Careful investigation in the laboratory and in the living animal shows conclusively that the blood cell of the healthy non-impressionable subject, attacks, absorbs, and digests the tubercle bacillus when brought into intimate contact with it. On the other hand, the cell of the individual which does not possess this defensive element, feebly attacks the intruder and is soon found invaded and indeed disrupted by a host of tubercle bacilli which multiply and thrive upon the substance of the blood cell. Whether or not we regard the first as being endowed with absolute immunity, which is obviously absent in the impressionable subject, the clinical result is the same. Let us not take it for granted that this immunity necessarily persists during the lifetime of this disease." Dr. Sweeny believes that in acquired immunity we have the only real and abiding hope for the tuberculous subject and for the extermination of the great white plague.

Orthopedic Surgery

Under the Charge of

JAMES K. YOUNG, M. D.

Professor Orthopedic Surgery, Philadelphia Polyclinic; Clinical Professor Orthopedic Surgery, Woman's Med. College, Pa.

Charcot's Arthropathy.—F. H. Albee, (*Jour. of the Med. Soc. of N. J.*, June, 1912.) There are two distinct types of the neuropathic joint, a simple synovitis, and a destructive osteo-arthritis resembling hyperrophic arthritis. These joint complications are said to occur on about five per cent of the cases of tabes, and they often appear before ataxia is dectected. The disease affects in order of frequency the knee, the hip, the foot, the shouider, and rarely, the spine.

In syringomyelia the bones and joints are more frequently affected than in any other nervous disease, but the shoulder, the elbow, and the wrist are the most commonly affected joints.

Charcots' joint, in arthropathia tabetica, presents a distinct clinical picture.

There is a sudden appearance of firm painless swelling of the joint which rapidly extends to the surrounding soft parts and often reaches its height in twelve to twenty-four hours. Rapid changes occur in the joint, loosening of the cartilages, wearing away of cartilage and bone, relaxation of the ligaments disorganization of the joint. The absence of pain is, of course, a manifestation of the tabes dorsales. Certain symptom, such as exacerbation of the tabetic pains, a feeling of weakness, or numbness about the joint, sometimes precede the onset of the swelling.

A variety of other trophic disturbances may accompany; the joint lesions localized anemia or hyperemia of the skin, gangrene, bullæ, painless abscesses about the fingers, abnormalities in the growth of the nails, osteoporosis leading to painless spontaneous fractures.

Operative treatment of the affected joint is unsatisfactory. But the application of a supporting brace efficiently prevents progress of the disease and the resulting deformity.

The Treatment of Joint Disease, and of Conditions Simulating them, by Physical Manipulation, L. Von Cotzhausen, (*Monthly Cyclop. and Med., Bul.*, May 1912.)--Physiotherapy may often be used to great advantage in the treatment of many joint conditions, such as false ankylosis, chronic and acute sprains, occupation diseases, rheumatism, arthritis deformans, synovitis, and fractures near joints. The means employed include electric therapy in all its many forms, photo and thermo-therapy, massage, gymanstics, vibration, and the use of Zauder machines. Cases of neuritis; of ununited fractureand ordinary fracture frequently respond to thesemethods of treatment also. The author in some detail describes the methods and measures employed in each class of cases.

Dietary for Arthritic Children.—1. Turnips with white sauce: Cook thoroughly after washing, and then remove all water by straining. Cover them with several tablespoonfuls of white sauce. Serve.

2. Puree of turnips: Prepare them by washing and boiling in water as above; when ready to serve, add one-third of their weight of puree of potato.

3. Oyster-plant: Chop up finely a rhizome of salsify (oyster-plant) after washing in water slightly acidulated. Dilute four tablespoonfuls of farnia in two quarts of water containing the juice of half a lemon. Put the oyster-plant into this dressing and boil. Allow to cook slowly for an hour and a half.

4. Oyster-plant with white sauce: Cook the pieces as they are, and drain, serving with a separate portion of white sauce.

5. Oyster-plant with beef juice: Cook in water as they are, and drain, basting with the dish-gravy of roast-beef, which has had the fat removed.

6. Oyster-plant as a puree: Cook the rhizomes, and mince them thoroughly, then mash. Add to the puree a little butter and a few tablespoonfuls of cream.

7. Custard: Boil a pint of milk with five tablespoonfulsof sugar and flavored with vanilla. Pour this luke-warm milk upon four beaten yolks of egg. Mix, and pour into stout white cups. Bake twenty-five minutes.

8. Vanilla cream pudding: Boil a pint of milk with six or seven tablespoonfuls of sugar, flavored with vanilla. Pour this, luke-warm, upon four beaten yolks of eggs and one entire egg. Mix thoroughly and cook for twenty-five minutes, Allow to cool and mould.

9. Snowy eggs: Boil a pint of milk with six tablespoonfuls of sugar, and flavor with a little vanilla or orange. Separate the whites and yolk of four eggs. Beat up the whites until quite firm and sweeten them. Add them by teaspoonfuls to the milk as it boils so that they are upon the surface, turn them, and remove them by a skimmer. When all the whites have been so cooked, beat the yolks, mix them with the milk which has been strained and again placed on the fire. Stir until it thickens and pour over the whites, not quite concealing them.—*Paris Medical.*

BOOK REVIEWS

Deformities Including Diseases of the Bones and Joints. A Text-book of Orthopedic Surgery, by A. H. Tubby, M. S., Lond., F. R. C. S., Eng. Surgeon to, and in charge of the Orthopedic Department, Westminister Hospital and Lecturer on Clinical and Orthopedic Surgery in the Medical School. Surgeon to the Royal National Orthopedic Hospital. Second edition, illustrated by 70 plates and over 1000 figures, of which nearly 400 are original, and by notes of 54 cases. In two volumes, Vol. I and II. Cloth, $16.00 net. Macmillan and Company, Limited, 66 Fifth Ave., New York City. 1912.

Orthopedic Surgery has no definite limits. It is essentially the surgery of deformities, yet it does not include the surgical treatment of every malformation. Modern orthopedic surgery is preventive as well as curative. It places great obligations upon the general practitioner, for it is he who sees deformities in their incipiency and when the body is most plastic. Every family physician should therefore qualify himself at least to recognize such defects and to apply the simpler correctives where nothing further is required. In this way he will render as great service as the surgeon or specialist to whom more severe cases must be referred. This monumental work answers the need of all these classes of readers. In it a leading English authority presents the worlds best knowledge on every phase of the subject, in clear language and with abundant and instructive illustrations.

Volume I includes "Deformities of Congenital Origin," "Some Non-Congenital Deformities of the Extremities," "Static Deformities" and "Affections of Muscles, Tendons, Bursæ and Fasciæ." Volume II comprises the following subjects: "Tuberculous Diseases of the Bones and Joints," "Rickets and Deformities," "Arthritis and Spondylitis Deformans," "Other Affections of the Bones and Joints" and "Paralytic Deformities," closing with appendices I-II-III and IV. This work appeared six years ago in one volume, but since that time immense advances have been made in orthopedic surgery. New methods of treatment based on clearer conceptions of pathogenesis and rendered possible by recent advances in technique have come into vogue and necessarily enlarged the scope of the work which is now issued in two volumes, being more convenient to handle and an index of the whole subject matter and of authors is included in each volume. The author, in this revision has adopted a plan of grouping and arranging the various subjects on etiological and pathological basis in preference to the less scientific regional classification.

The author's aim, in the preparation of this treatise has been to give a succinct present day knowledge of orthopedic surgery. He, therefore, avails himself of the writings of the more prominent American orthopedic surgeons including Bradford and Lovett. He also gives due credit for the work done in France by Redard, of that in Germany by Hoffer and in England he frequently quotes Adams, Reves, Walsham and Hughes and it is worthy to note that the transactions of the American Orthopedic Association are frequently referred to. The text and engravings vividly explain and illustrate the various conditions and their management so that they are equivalent to so many clinical demonstrations. The work is a most excellent one and especially suitable to students for the clearness with which matters are presented and the authority given by the author, whose work in orthopedics is recognized as pre-eminent both in England and this country.

Milk and the Public Health, by William G. Savage, B.S.C., M.D., (Lond.), D. P. H., County Medical Officer of Health, Somerset; Late Medical Offier of Health and Public Analyst, Colchester; Lecturer on Bacteriology, University College, Cardiff; Assistant in Charge of the Bacteriological Department, University College, London, etc. 459 pp. 66 Fifth Ave. Macmillan and Company, Limited, 1912. Price $3.25 net.

For the past decade the pages of the medical press has been crowded to over-flowing with contributions on milk and its relationship to the general health of the community, but it is so widely scattered as to be inaccessible only to a specialist or one having the advantage of a large library at his convenience. Therefore, the present book gives a comprehensive, systematic and authoritative account of the work recently done in this field and really meets a long felt want. Part I deals with the chemical and cellular content of cow's milk and presents a very satisfactory summary of the bacteriology of milk and its bearing on disease, a large space being naturally given to the consideration of tuberculosis. The investigations undertaken by Robert Koch are referred to so as to determine the role played by this type of the tubercle bacillus in the production of human tuberculosis. Part II is devoted to the practical bacteriological examination of milk, the methods in use being described with clearness and in detail. The only chemical tests included in this section are for the detection of preservatives or the acidity estimation which serves as a rough indication of the degree of bacterial contamination. In part III the administrative, technical and commercial aspects of the milk question are discussed, together with the practical and legal reforms the author regards as desirable. Although the book is written from the British standpoint, frequent and extensive references are made to the important work done by American investigators. There are several instructive appendices and a number of illustrations, mostly from photographs.

Common Disorders and Diseases of Childhood, by George Frederic Still, M. A., M. D., (Cantab), F. R. C. P., (Lond.) Professor of Diseases of Children, King's College, London, Physician for Diseases of Children, King's College Hospital. Physician to the Hospital for Sick Children, Great Ormond Street, Honorary Member of the American Pediatric Society. Second edition. Illustrated, Demy 8vo., cloth, 744 pages, price $5.50. London, Henry Frowde, Oxford University Press, 35 W. 32nd Street, New York City. Hodder and Stoughton, Warwick Square, E. C. 1912.

The author's aim in the preparation of this volume "COMMON DISORDERS AND DISEASES OF CHILDREN" was to place before the busy physician a clear concise understanding on the more common disorders of infancy and childhood. The major portion of this volume is made up from a course of lectures delivered at King's College Hospital and at the Hospital for Sick Children, combined with clinical reports and statistics when such are needed to make the teaching more explicit or to emphasize or illustrate points of practical importance.

The author views chiefly the practical and clinical aspects of diseased conditions, particularly diagnosis and treatment, but where pathology or morbid anatomy bear particularly upon any practical point the author considers same in sufficient detail. Dr. Still believes "every drop in the ocean of clinical experience has a value of its own," and as far as possible he makes up his statistics from his own case-books, which add value to the work as a reliable clinical guide. This book is a worthy addition to Pediatric literature. Not only are the common disorders of childhood dealt with, but even disorders common and rare are fully discussed, which make the work a veritable mine of information on disorders of infancy and childhood.

Infant Feeding, by Clifford G. Grulee, A. M., M. D., Assistant Professor of Pediatrics at Rush Medical College, Attending Pediatrician to Cook County Hospital. Octavo of 295 pages, illustrated. Philadelphia and London. W. B. Saunders Company, 1912. Cloth $3.00 net. W. B. Saunders Company, Philadelphia and London.

This work is the outcome of a course of lectures delivered during the past three years to the students of the Rush Medical College and their demand on the author for a reliable trust-worthy guide to infant feeding is, in part, responsible for the appearance of this work. In the preparation of this volume the author has endeavored to do two things, first, to bring the knowledge of the scientific process of infant feeding abreast with the latest and most modern methods, and second to put forth the practical application of these principles in such a way that they can be easily and readily grasped by the general practitioner. In this he has not fallen short of his original intentions and to sum up in a few words, this work is the *last word* on infant feeding.

After reviewing the scientific principles bearing on the question, the author goes into the actual application of these principles. He does this in such a clear, simple way that his meaning in every instance is at once apparent. The articles on the breast and breast milk, the technic of breast-nursing, and the nutritional disturbances of the breast-fed infant you will find of daily service. Nowhere else, in any language, can you get the information this book gives you. Artificial feeding, again, he presents it in the same forceful, definite way, giving a number of simple formulæ. The illustrations, particularly those in color showing the actual shapes and appearances of normal stools and those of diseased conditions, are worthy of your special consideration. It is a work that should be in the hands of every physician, who is called upon to give advice where the subject of feeding babies and children is concerned. It is a pleasure and a duty to commend this volume to the profession.

American Association for Study and Prevention of Infant Mortality. Transactions of the Second Annual Meeting, Chicago, Ill., 1911. Executive Secretary, Miss Gertrude B. Knipp, 1211 Cathedral Street, Baltimore, Maryland.

This report contains a list of members, committees and officers for the years 1910-11-12, as well as a full report of the meeting, many of the papers printed intact an excellent synopsis of those not printed in full.

This association is doing a most excellent work and has enrolled upon its membership men and women of prominence throughout the country who are interested in child welfare work.

The volume is well arranged and contains papers upon the following subjects: Continuation Schools of Home-Making, Eugenics, Housing, Midwifery, City Milk Supply, Nursing and Social Work.

One of the most important features of the sessions of the association is the "Popular Meetings" which are open to the public and at which addresses are made of importance to the laity.

Too much cannot be said of the good work of the association and it is to be regretted that there are only 584 members now in the United States. As the dues are so small it is very much to be hoped that a large number of new members will be added during this year especially in view of the fact that the volume of transactions is well worth the price paid for annual dues.

The Story of A Doctor's Telephone—Told by His Wife, by Ellen M. Firebaugh, author of "The Physician's Wife." Cloth $1.25. Boston, Mass. The Roxbury Publishing Company.

The "Story of a Doctor's Telephone" is a delightful novelty in literature. Mrs. Firebaugh, the wife of an Illinois physician, knows whereof she speaks. She says: "Through a doctor's telephone how many glimpses of human nature and how many peeps into the great story of life can be seen. And if while the reader is peeping too, the scene should suddenly close, why that is the way of the telephone, and not the fault of the writer "

"The Story of a Doctor's Telephone" supplies in the brightest and most original way all sorts of incidents—comic, pathetic, grave, gay, lively, severe. It has the charm of literary style, and is so simple, so true, so full of interest, that it will go straight to the hearts of thousands of readers.

MALT EXTRACT AS A RECUPERATIVE

Every clinician has experienced the difficulty of combating that debility which is the result of acute infectious fevers. Often the most intractable symptom the doctor must overcome in such convalescence is the stubborn gastric and intestinal atony usually so marked in the aftermath of typhoid and its congeners, and in the cachexia of malaria. For these conditions there is no better remedy of its knid than a large circle of practitioners regularly find in Pabst Extract, The "Best" Tonic.

By virtue of the important enzymes it contains, this excellent preparation stimulates and assists digestion, and thus notably favors assimilation of the concentrated nutrients the beverage contains. That these are indeed valuable is apparant when it is stated that a wine glass full of Pabst Extract is the equivalent in calories of one egg. Obviously, the food value of the Extract is remarkably high, and its inherent utility as a food stuff correspondingly great.

Coupled with the fact that even a most defective digestion can easily readily retain and assimilate this palatable liquid, this high nutrient quality qualifies Pabst Extract beyond any other preparation in the materia medica to compensate continued loss of nutrition and the debility resulting from prologed absorption of toxins. In this field of the trapeutics, as in any deterioration of the blood from its healthy form, the exhibition of this demulcent and nutritive tonic will give results as gratifying to the physician as to his patient.

THE AFTER-TREATMENT OF LA GRIPPE

In view of the successive eqidemics of La Grippe from year to year, since this disease was first introduced or imported into this country, it is reasonable to presume that the infectious condition referred to is now endemic, and that the present winter will prove no exception to the rule in the incidence of a disorder which is now world-wide in its distribution. If there is any one particular feature of La Grippe which is common to almost all cases, it is the distinct and pronounced prostration that follows the subsidence of the acute symptoms.

While authoritative opinions may differ as regards the treatment of La Grippe during its febrile or active period, there is no doubt of the essential necessity of supportive and tonic treatment during convalescence. It should be remembered, however, that the physician who prescribes a course of tonic, hematinic treatment, without reference to the digestion or gastro-intestinal sufficiency of his patient, is very liable to "strike a snag." The digestive system of the average "grippe" patient, like his general vital tone, is almost always "below par" and the ordinary iron products are likely to produce gastric irritation and digestive discord generally. Pepto-Mangan (Gude) is praticularly serviceable in such an emergency. Its ferruginous content is in readily tolerable and immediately absorbable condition and is assimilated and appropriated without embarrassment of digestive vigor or strain upon the absorptive or assimilative functions. When prostration is extreme, it is a good plan to order strychnia, in appropriate dosage, in combination with Pepto-Mangan. There is no surer, safer or more efficient general hematinic medication than this.

Professor Davenport in his admirable work on the Diseases of Woman, Dr. L. G. Boyd, Tunnelton, Ind, reviewing adds:

How can we prevent dysmenorrhea? It can be done by keeping the patient under morphine, but this is a barbarous solution of an important problem. It in fact does not solve it. Morphine is inadmissable and improper in these cases. It produces derangement of the secretions and tends to establish a drug habit that will make life a burden. I have long employed a remedy that not only relieves the pain, but produces no habit and is not dangerous. I refer to Dioviburnia. It is a most valuable uterine tonic, antispasmodic and anodyne of exceptional worth. I rely upon this remedy to prevent dysmenorrhea, which as Professor Davenport truly says is seen in almost all, if not in all women. I have my patients who suffer with dysnemorrhea to take Dioviburnia, beginning two days before menstruation is due and persist in it until the period has passed. I give it in doses of one to two teaspoonfuls every three hours throughout this time. When this direction is followed I have found that my patients go through the period without pain. The adoption of this treatment I may say also, has brought me many grateful compliments.

Where the patient is very nervous having the tendency to hsyteria, neuroses or uterine congestion, I administer Neurosine one part, in combination with two parts of Dioviburnia, which always gives relief.

PEDIATRICS

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EDITORIAL

EUGENICS AND THE BIRTH-RATE

The one most disturbing fact in modern life is the reduction of the birth-rate. We used to hold up our hands a little aghast because France's death-rate was gradually approaching the birth-rate and the beginning of the end of the nation seemed in sight. There are a great many countries now in which the same alarming prospect must be faced. Even in Germany the birth-rate is being reduced ever so much faster than the death-rate and the two are approaching each other. It is usually said that populations are too dense, opportunities to get on too few and that the lowering birth-rate represents only a natural result of economic conditions. The nations do not need more population and the law of supply and demand rules in this as in other things. In Australia and New Zealand however, an increase in the population is eminently desirable. There is abundant room for new settlers and children of the present inhabitants would find abundant opportunities in these new countries. The birth-rate has been so much reduced however that there is little if any increase in population and a decrease is just beginning which will seriously affect the number of the population in the next generation. While there was much talk a few years ago of Australia for the whites there are conservative authorities who declare that by the year 2000 if the present trend in the birth-rate continues there will be no whites for Australia.

It seems almost impossible that a white race established in the country should disappear, yet it must not be forgotten that right here in New York State outside of the large cities our population is scarcely if at all increasing. Wherever there are many foreigners there is a very satisfactory birth-rate hence the cities are adding to our population. In the country places the natives are not having enough children to maintain their numbers and as the birth-rate has been falling constantly for the past thirty years the disappearance of our native country population seems to be almost inevitable.

It is just at this time that enthusiasts with regard to eugenics are trying to make marriage even more difficult than it has been by various legal regulations. In the West we hear of many clergymen who insist on a certificate of health before marriage. Those of us who realize that a physicians certificate can mean almost nothing in cases of syphilis whenever the disease is in abeyance and unless the physician is well acquainted with the patient and his family history may mean still less as regards mental diseases, and cannot but think that we are rushing into a subject of which as yet we do not know enough to make these stringent regulations that may prove harmful rather than helpful for the race. Certain it is that marriage must not be discouraged any more than is absolutely necessary for often desirable parents will hesitate if there are many bothersome formalities to fulfill.

We need above all, more definite knowledge with regard to eugenics and its place in racial development. It would be lovely of course, to have a whole generation of perfect children, but that is an ideal and we must have children to continue the race and the Lord knows that most of those who get along very well and accomplish quite a little of the world's work at the present time were not any too perfect. We must not let theory run away with practice in this important matter. Unfortunately it has been difficult for physicians to obtain definite information on this subject of eugenics without such extensive reading as was out of the question for the busy medical practitioner. We are glad to see that one of the medical schools that of Fordam University is in its extension course, just before the regular term this fall, to make a specialty of definite knowledge with regard to eugenics.

There is much that can be learned with regard to it, and it has its proper place in connection with nervous and mental diseases as such men as Head and Holmes, who are to be among the special lecturers, are likely to teach them.

REMOTE EFFECTS OF ALCOHOL ON INFANT MORTALITY

Alcohol in any form is not a food for the nursing mother, and on the contrary, the drinking of alcoholic beverages, by a pregnant woman in its—supposed—mildest forms, beer, ale, and stout for instance, is to be deprecated, for fear of absolutely cutting off the supply of food which nature intended an infant to have. When the supply is not entirely cut off, the quality is often so impoverished that the health of the infant is seriously jeopardized.

Artificial feeding does not provide a means of avoiding the ill effects of a mother drinking alcohol. Bottle feeding does not, always, produce children that develop into healthy men and women. Nature intended that infants should be fed in one way, and in one way only, and that "one way" is at nature's fountain, the mother's breast. If a mother voluntarily jeopardizes this one way, she is willingly jeopardizing the health, perhaps the life, of her child.

Dr. Wallace Beveridge, in writing on this subject reports some recent laboratory experiments as an indication of the physiologic action of alcohol on cell life. With the cells of torula (the yeast plant) taking one cubic centimeter as the standard, there were found after seven hours 2,061 normal cells present. When a one-thousandth per cent. alcoholic solution was added, the normal cells were reduced to 1,091. When a one-hundredth per cent. solution was added, the cells numbered 992. With a one-tenth per cent. solution, the figures dropped to 852. And when a five per cent. solution was added, only 69 normal cells were found.

"To come higher up in the scale of existence; add one-tenth of one per cent. of alcohol to the water in an aquarium in which perch, crayfish and goldfish are swimming, and the fish will drop to the bottom. Unless removed to an aquarium containing unpoluted water, they will die.

"If a fertile egg of a chicken is immersed in a five per cent. solution of alcohol for about two hours, or subjected to the fumes of alcohol, the embryonic chicken will die.

"By administering alcohol to a guinea pig in minute doses—about half a dram during every twenty-four hours while it is with young—the offspring if alive at time of birth will die within six hours thereafter."

Recently it has been proven by a number of our best physiological chemists, among whom we need only mention Prof. Chittenden, Dr. Berkley and Prof. Erlich, that if a woman takes spirituous drinks during the period prior to her becoming a mother and afterwards, even though the alcohol be in very small quantities, it has a very deleterious effect upon the natural nourishment that she can offer her baby.

The alcohol produces a chemical change in the proteids, carbohydrates and the fats, which are the chief nutritive factors in the milk.

Just glance at this report of the observations made by Dr. W. C. Sullivan, of the General Hospital at Liverpool on female prisoners in the alcoholic ward. He took the history of 120 women to whom 600 children were born. Of this 600, 55 per cent. were dead at birth, 22 per cent. died before the third year, 11 per cent. died before the fifteenth year, and the remaining 12 per cent., may or may not have reached maturity, Dr. Sullivan not being able to collect the data.

Or take the histories of 827 cases of marasmus, and rickets, due to inanition primarily caused by improper milk. These histories gathered at the clinics of the Cornell Medical College, Bellevue, and Roosevelt Hospitals, were taken with especial regard to the fact that the mother had nursed her child. In eighty-seven and four-tenths per cent. of the cases the mother had used alcohol in some form, either as beer, gin or whisky. One should not use a more striking proof than this of the injurious effect of alcohol upon the natural food of babies.

HOW THE PSYCHIC CENTER AFFECTS EUGENICS

A most interesting article on the "Psychic Centre" appears in June issue, *Southern Medical Journal*, from the pen of Dr. J. T. Searcy. After some generalizations he declares that every nerve center, however simple or complex, is the middle of an arc of living, sentient nerve action. Towards it come sentient, afferent fibers bearing living action to it, and living efferent fibers bear executive action from it; while the center itself adjusts the action sent from it to the action it receives, for the purpose of control, with a grade of intelligence that belongs to it in its particular sphere. Every nerve center, therefore, is tripartite in its functions.

While the psychic and sub-psychic centers are quite separate and distinct in their functions, they are but parts of a whole, and are not entirely independent of each other. Nerve lines connect them and render them "sympathetic" the one with the other. Happy, harmonious, natural, normal action in either departments affects the other advantageously, while unnatural, abnormal, disturbing action affects the other disadvantageously. For instance, disturbing action in the brain affects injuriously the action of the lungs, the heart, or the stomach, and, vice versa, disturbing action coming from an internal organ impairs brain action.

The functions of the psychic center, all relating to the outside of the man, makes its capacities and abilities matters of outside observation by others. They are open to outside comment and inspection. It takes an expert to give an opinion of the integrity and functional ability of an internal organ, like the stomach and lungs, the heart or the kidneys, but the abilities of the psychic center are open to the outside observation of all, and all are more or less efficient judges of its condition and capacity. Because this field is so generally occupied by others may be one reason why the medical profession as a rule so abstain from it, but it belongs to the province of medicine. This is being more and more recognized.

Natural, normal, healthy brain structures are essential for normal, natural, psychic action towards maintenance of ability and towards improvement. Brain health partakes of the general health. A general condition of good health is necessary, therefore for brain strength and improvement.

The psychic center is the specialty of the human race. We select and breed the hen for eggs, the cow for milk, the hog for flesh, the horse for speed, etc., etc. Nothing, however, is done by intelligent selection to improve the human species. Towards human eugenics practically nothing is done; it runs at loose ends without even any instruction attending it. Nothing is done socially towards improving hereditarily the psychic-center. Practically, human reproduction is done without any reference to future generations or the improvement of the psychic-center, man's great comparative specialty. Not only ought brain hygiene to be taught to the individual, but the principles of hereditary psychic improvement, which correspond with the general principles of streptoculture in all species, ought to be taught to all.

Most of the agenices in civilized society tend to psychic deterioration and degeneracy. The first object of civilization as it goes nowadays, is to continue all human lives alike; an equally high valuation is placed upon all. They being naturally the most numerous, our benevolence and charity is principally directed towards the saving and the increasing of the less competent, often of the deficients and defectives. We not only give equal opportunities to all to succeed in living in accordance with their several psychic abilities, but we also aid the least capable to continue and multiply. Improved sanitation, improved medicine and surgery, improved laws and government, improved altruistic principles, improved abundance of the necessaries of life, all work for the more numerous multiplication of the less competent, who in the ruder stages of our race's history dropped out.

For these reasons abnormalities of the psychic-center, of all grades, are appearing in greater numbers in civilized countries. We more abundantly save and multiply them than we did a few generations ago. Statistics about insanity, which is only the extreme grade of forms of psychic deficiency and defectiveness, are easy to obtain. They indicate in all civilized countries that insanity is increasing more rapidly than the population. Other milder types of psychic abnormalities are even more increasingly apparent also.

The first predisposing cause for these abnormal psychic conditions in civilized society comes with the civilized and the uncivilized alike. In all human societies deficiencies and defectivenesses of all structures, the psychic-center along with the others, occur more frequently in those phyla, or lines-of-descent, that are deteriorating in general health. Diseases, injuries, faultiness and weakness in all organs happen most frequently in degenerating families and races. We find, therefore, psychic abnormalities of all grades appear most frequently in deteriorating lines-of-descent, those less generally healthy than the preceding.

The second predisposing cause occurs in civilized society most, as already stated, because in civilized communities more than the uncivilized, all their social improvements and methods tend to bring to adult life and to multiply the less competent. They naturally are the more numerous class, and if we save all alike we multiply them most.

A third predisposing cause for the increase of psychic abnormalities in civilized countries is the almost universal use of anodyne drugs, which act chemically upon the delicate protoplasmic material that constitutes the central functionating part of the sentient and conscious fibers and cells of the psychic department. There are a number of such drugs, all of which act chemically to obstruct or stop the sensating action of these structures. Some of these narcotic drugs are chloroform, ether, nitrous oxide, chloral, alcohol, the solutions and alkaloids of opium, of coca leaves, of hashish, of hyoscyamus, of tobacco, of cola nuts, tea and coffee. Small doses of any of these produce a pleasurable effect; for this reason the milder ones have gotten into general popular use as luxuries. They all, however, have injurious chemic effect upon the structures of the psychic-center, and in the length of time, through generations, are producing a generally impaired, psychasthenic condition of the brains of the people. Their broadcast use is having a general effect in civilized countries. The women and children use caffein, the men use caffein, nicotine and alcohol generally throughout society.

The three predisposing causes, therefore, in civilized society, for the general increase of psychic deficiency and defectiveness are, first, lineal deterioration of general health; second, the saving and multiplying of the less competent; and, third, the general use of narcotics as luxuries.

CONSERVATION OF CHILD LIFE

Congress is gradually coming to realize that its duty to the people includes an oversight of the health and living conditions of the human family. The hogs and the cattle, the fish and the birds, the plants and the trees, the soil and the rivers, all are safeguarded from wanton destruction by rapacious marauders; but the sanctity of "personal rights" has so enthralled the nation that human health and life have been regarded as little more than a commercial asset, and those who trafficked in their waste not only have not been "regulated" but have actually been protected by law-making and law-interpreting bodies, as well as by the press.

The passage of the Borah child bill and its approval by the President indicates that a change has taken place in the popular mind as to what constitutes "personal rights," for with the approval of this bill child-life has become recognized as a proper governmental study. The bill creates a new bureau whose province will be the collection of statistics of all sorts concerning the living and labor conditions of children.

The bill was opposed bitterly by some members of the House and Senate on behalf of certain industries employing large numbers of young children, but despite this opposition the measure obtained a safe majority in both chambers by reason of its high importance as a public welfare measure. The reports of the investigations pursued by the bureau will be published by the government from time to time.

The establishment of a bureau of this kind is a long step in the direction of health conservation and should have been created long ago. The next step—which should have been the first step in the scheme of health and life protection—is the passage of the Owen bill and the establishment of a department of health for the protection and conservation of all human life and health.—*Exchange.*

PEDIATRICS

ORIGINAL ARTICLES

THE RELATION OF THE PHYSICIAN TO PHILANTHROPIC AND SOCIOLOGIC WORK OF THE COMMUNITY IN CHILD LIFE*

BY
HENRY L. COIT, M. D.
Newark, N. J.

Ignorance, poverty, disease, degeneracy, crime and mortality are all consequences. Together, they spell destruction. They are inter-dependent and in some degree progressive in descent, the greatest of these is ignorance, which is the genesis of them all.

Ignorance, implies a need of general knowledge and suggests the educational method for its removal, but it should be borne in mind that almost all phases of ignorance affecting the integrity of society have a medical aspect which relates to some neglect of the laws of healthy mental or physical life.

Ignorance sometimes hinders the progress of an entire race. Of the nine million negroes in the south only one in four thousand is a physician. Through the lack of educated physicians, and a want of knowledge, the colored race is subjected to the destructive effects of ignorance and little attention is given to its physical improvement and perfection.

Ignorance is the most potent, initial cause of child mortality. It is a factor in all other causes whether they be direct like unsafe, unsuitable or contaminated food and infectious disease or indirect like parental indifference, neglect of the child before and after its birth, the influence of bad hygiene or of industries and illegitimacy upon the viability of the child.

The high infant mortality in the industrial towns has led to the belief by some that the industries themselves are directly

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responsible for the large mortality in the first month of infant life because of the late ante-natal and early post-natal labor of women. After inquiry of several superintendents of mills where women are employed, I am not strongly impressed with the factory factor in infant mortality in this country. Poverty which entails upon the prospective mother prolonged and excessive home labor is more destructive than industrial employment.

With an average infant mortality rate of 150 or 160 per thousand births, the high death rate among infants in towns like Fall River would seem a strong argument for the direct influence of industry itself but in the city of Richmond, where women are not thus employed, infant mortality is in excess of that of Fall River. Ignorance and poverty, which are conducive to neglect, must therefore be charged with the greatest influence on mortality during all periods of childhood.

Poverty is a social condition which will always have to be reckoned with in communities. It will be helpful to classify the poor in order to know best how to deal with them:

Class one consists of those whose misfortune is not of their own creation nor the result of their own acts but is brought about through circumstances over which they have no control. They are amenable to instruction and as a rule soon rise superior to their misadventure.

Class two consists of those who reach poverty by their own deliberate transgression of physical and moral laws. They do not seem anxious to do better and they are unable to take the initiative to escape from poverty without help. From an economic point of view, it pays to assist them for they finally do well and make good.

Class three consists of those who have no resources either inherited, native or acquired and no assistance will avail to stimulate them to effort. Good work done for them is immediately neutralized by indifference or paralysis of interest with no appreciation of kindness. A mother of this class will make the work of charity of no effect by inertia, dirt, squalor and laziness and her child often dies in spite of the good samaritan who places it in a hospital, because on discharge it usually lapses into its former condition. Help given to this class is justified to relieve human suffering.

The physician's relation to ignorance, poverty, disease and crime is fundamental and by his training he becomes the logical leader and director of most of the philanthropic and sociologic work in the community. Philanthropists, charity organizations and social workers will find it a great advantage to follow the principles and methods for solving their problems and conducting their work taught by the experience of physicians.

The philanthropic and sociologic problems of our country, barring the negro problem, very largely result from the immigration of poor and illiterate foreigners. As physicians, we cannot do much to stem this tide of immigration, and it matters very little, for the adults who land on our shores represent only one generation and are not a permanent influence. But we have a duty to their children, both those who are brought over the sea and those born here. Our first work is the problem of infant hygiene, healthful home conditions, making the parent intelligent and capable, providing pure air, pure water, and pure food, removing prejudicial foreign customs and disease breeding causes. This work is accomplished by the application of principles learned in the medical and surgical departments of the hospital, the laboratory for medical research and the medical consultation for mothers with sick children.

All educational and social work of this class should be under the supervision and largely under the control of trained physicians, who by their experience almost intuitively know how to apply the corrective means, and do it with the least expenditure of labor and money.

Eugenics has just crossed the threshold of professional and scientific recognition. Its sunrise is just now sending its penetrating and illuminating rays across our consciousness and conscience, and already in some states there are laws for preventing the propagation of their kind by the unfit when they are adjudged likely to transmit to their progeny a tendency to disease, degeneracy, insanity and crime. It is a good omen that such measures are now effective in six commonwealths. The clergy of one church in a large city in the middle west have announced that applicants for marriage must hereafter present certificates from a physician of repute declaring them to be in a normal physical condition.

The teaching of sex hygiene to children deserves consideration. The whole proposition of teaching little boys and girls their genesis is more or less sophistical. Such instruction is often given in ignorance of the child's nature. To expect teachers in elementary schools to tell boys and girls about their origin and advent is assuming that parents generally have no intelligence and neglect their children

Such instruction should never be given to groups of children but the individual child may need to be guided away from evil and error. This, however, should be done at a proper age and with a full knowledge of the antecedents, the moral temperament and the parental training. The basis of such instruction should always be a moral correspondence between the child and its teacher or caretaker.

In its perpetual effort to absorb knowledge, a normal child's mind finds no time for more than a fleeting thought on these matters and a wise caretaker can easily divert the active unfolding mind from the thoughts automatically awakened concerning its life and surroundings.

To instruct little children in the relations of the sexes and then tell them not to talk about it to other children is ridiculous. An instance in point is related: After a teacher had talked with her class about these matters, a little boy and girl ran home and told their mother they were going to be married and said "What do you think we will do with the eggs, mother?" "What, my dear?" "Why, we are going to eat them."

Little children should be absolutely safeguarded from sexual thoughts until they are grounded in moral principles which should be accomplished in the first twelve years. The ripening of the senses does not occur until after this age and then in puberty and adolescence, the knowledge of these things takes on a natural course and does not contaminate and pervert their minds.

Thoughtful parental oversight, with a pure home environment and instruction in the ethics of play and in morals and religion are the birthrights of every child. Given a daily family intercourse consisting of clean conversation by parents with noble ideals, the child when brought in contact with evil will almost invariably revolt against it.

There is a very large number of children in American schools whose parents are made of sturdy, moral fiber with a religious basis for their life and action, given to them a generation ago in American homes by parents who had their children's moral interests at heart as well as their mental and physical wellbeing.

After a considerable experience in philanthropic and sociologic work of a medical character, I am convinced that the profession does not comprehend its vital relation to this work, and I am also certain that the public does not recognize the value of the physician as a factor in the solution of social problems, often ascribing ulterior motives for his voluntary activities. If, however, we do not take a hand in solving these problems, and do it voluntarily, we shall have to do over again at great cost of labor, that which is now being imperfectly done by the sociologist.

Physicians are too indifferent to their peculiar fitness for social service. Their opportunity, is fast drifting to lay-workers who find that before they are efficient they must have special training in hygiene, eugenics, physical economy, morbidity and mortality, all of which are the physician's armamentarium. "The Social Physician" should be a distinct factor in civic life with an earning capacity for administrative work in the community. The physician is the logical leader and director in dealing with problems growing out of disease, infant mortality, blindness, insanity, epilepsy, feeble-mindedness, syphilis, hookworm disease, tuberculosis, sex hygiene and sterilization for the cure of crime.

Preventive medicine has greatly reduced the revenues of the physician because physicians have had conscience and spirit enough to carry on these altruistic and disease limiting enterprises for the public good. We need, therefore, to give back to the physician the work made possible by his initiative.

The origin of preventive medicine and its application to philanthropic and sociologic questions is so recent that it is within the memory of most of us. It was Jacobi who laid the foundation for pediatrics in the United States through the professorial chair which was established for him in Columbia in 1860. It was Meigs, Rotch, Holt and Heubner who gave us the master key to open the door to a scientific knowledge of infant dietetics. It was De Four over sea and Koplik here who established the Milk Depot and the Infants' Consultation. It was in this society in 1889 and 1890 that the first steps in the pure milk crusade were taken. It was Knox of Baltimore who laid the cornerstone for The American Association for the Study and Prevention of Infant Mortality. It was Variot and Lust who organized the International Union for the Protection of

Child Life. It was Anderson, and Broadbent who founded the British National Association on Infant Mortality. It was Van Ingen, Schereschewsky, Churchill, Hatfield and Hammill who have made our baby saving shows the envy of the world. It was Cabot of Boston who inaugurated the hospital social service idea.

I agree with Jane Addams of Hull House that women are specially fitted by their nature for social uplift work because of their intuitive knowledge of women and their ability to get in close touch with women in the home, but all this social uplift work is better done under the guidance of medical men who by their experience and education are fitted for constructive philanthropic adminstration of such a character that it alters types of temperament, improves the physical condition of the sick, and changes the environment from one inimical to life to one of comfort and safety.

THE RELATION OF DEFECTIVE CHILDREN TO THE PUBLIC SCHOOLS*

BY

E. R. JOHNSTONE
Superintendent of the Training School at Vineland, N. J.

About fifteen years ago an attempt was made to find how many defective children there were in the public schools of Indiana. Most superintendents did not recognize any in their schools, and as the word "feeble-minded" was but imperfectly defined, nothing satisfactory was obtained.

Ten years ago a like attempt was made in New Jersey with similar results. Superintendents, principals and teachers with but few exceptions declared there were no defectives in their schools.

Five years ago a committee of the State Teachers' Association undertook to make a census of the defective or feeble-minded children in the public schools of this State. Again the difficulty of determining appeared, nevertheless, several hundred cases were recorded as questionable, and the movement to find, segregate and properly train these children was well begun.

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*Read before the New Jersey State Medical Society, Spring Lake June 12, 1912.

Special classes have been established in most of the larger cities of the State and specialized examinations have been made in a few communities. Two things are becoming more apparent. First, wherever one class has been established, there has been a quick and insistent demand for several more. Second, although the original idea was that the children in these classes were really only being coached and so would easily catch up with the other children; as a matter of fact, even with the individual care and attention in a small group with a well-trained teacher, the larger number of these pupils never get out of the special classes.

Goddard's studies show that of 2,000 children in the first five grades of an entire school system, three per cent. are feeble-minded and fifteen per cent. are backward. These percentages are practically confirmed wherever the tests are properly made. This means that eighteen per cent. of our younger school children need the attention of a specialist.

In many the condition is remediable. Enlarged tonsils, adenoids, slight deafness or blindness, aenemia, rickets, etc., the physician should be able to correct. Some little special work will help the foreigner or the child whose parents move often, or the habitual truant. Still without any of these handicaps present, or when they form but a small part of the real trouble, we find perhaps three per cent. who simply do not pass from year to year.

We frequently forget that in order to advance, a child needs to know only seven-tenths of the regular work of a grade. Seventy per cent. will "pass" him and we all know that the conscientious teacher who has given this dull boy three or four times the amount of attention to which he is entitled, is inclined to favor him, and so lets her conscientious scruples shift from absolute justice in marking, for fear of wronging the boy, so that he probably gets marks of seventy per cent. when he is really only entitled to sixty-five per cent. or less.

Now when the child who has not been able to do seventy per cent. of the work that eighty per cent. of his companions have done is put in the special class, it is expected that he will soon "catch up." But let us see what catching up means. It means that he must not only do a year's work in a year but, because the others who left him behind last year are also moving along a year, he must do two year's work in a year. If it takes two years to catch up, he—the dullard who has always dragged behind—

must do at least one and one-half years' work in each of two consecutive years.

The child who has been merely handicapped by a remediable disturbance and who has otherwise a good mind, may and usually does catch up when the disturbance is removed, but many of the children who get in the special classes today will stay there. The successor of the superintendent of one city of 50,000 who proudly said ten years ago: "We have no feeble-minded in our City," is now asking for more teachers for his special classes. Everywhere the experience is the same, and now that we have compulsory medical inspection and the requirement that Boards of Education shall establish special classes, we are facing the problem of what is to be done for the defective children and what part the public schools shall play in their care and training.

I believe the time has come for the Commonwealth to recognize that every child is entitled to such education as is best suited to his needs. This means that special classes of various kinds must be established under the school authorities. The blind, the deaf, the cripples, the incorrigibles must some day take their places in the life of the Commonwealth with normal people. Therefore, they at least must have training in the public schools to keep them from becoming institutionalized and thus losing touch with normal community life. Only such of these as live in communities too small to justify special classes should go to institutions. With the feeble-minded, we have a slightly different problem.

If medical inspection is thorough and associated as it should be with psychological inspection, the special classes will soon be found to contain children from all of the groups mentioned above. The school authorites will find a fairly large percentage of actually feeble-minded (three per cent.) in with their backward children (fifteen per cent.) For the present at least all of these children will be placed together in the special classes. As the numbers grow, they will be better grouped.

In theory, the feeble-minded should be sent at once to the State's institutions. In practice this cannot be done. No state in the Union is providing for many more than one-tenth of her feeble-minded and epileptics. The cost of housing all of them, feeding them, treating and training them would swamp the State treasury. New Jersey has in its institutions for feebleminded and epileptics a few over 1,000 cases today. The Legislature this spring appropriated over $450,000 for feeble-minded and epileptics. We have over 5,000 other cases recorded in our State and only a superficial canvass has been made. Should a reasonably careful census be made, it would at once be evident that the State government cannot afford to provide for the care and maintenance and training of its feeble-minded and epileptic wards.

I would have you pause a moment at this point to consider two propositions.

1. The State government cannot afford to properly provide for all of its feeble-minded and epileptics.

2. The citizens of the State cannot afford *not* to properly provide for all of its feeble-minded and epileptics.

I have tried to show the reason for the first proposition above. The fact that we are now convinced that from sixty to eighty per cent. of the cases are hereditary, and that feeble-mindedness, epilepsy, insanity criminality, inebriety, tuberculosis and syphilis are almost inextricably associated, while many cases of deafness, blindness, sex perversion, pauperism and allied conditions belong in this great neuropathic class, should be sufficient to make us feel that the burden is too heavy, the cost too great to be allowed to increase. Unless we act promptly and efficiently, our grandchildren will not be able to foot the bills.

Here is what can be done:

Continue to extend the medico-psychological examinations. Establish special classes as rapidly as possible, placing in them all who are unable to keep up with the normal pupils. Reclassify in the special classes as the conditions warrant but receive all feeble-minded children of school age, excepting those that are of such low grade that they cannot be kept in school. When it is found that these children are becoming old enough to be sexually dangerous, they should be transferred from the special classes to a training institution. All of this should be under the general control of the educational system and until the last step mentioned above is taken, the cost of housing, feeding and general maintenance will be borne by the parents.

I am purposely omitting discussion of unsexing. We know too little about it to do it in a wholesale manner but I believe that in time all cases in which heredity is found to be a factor, will be sterilized before they get out of the training institution into those for adults.

All cities of the first class and those of the second class having more than 25,000 inhabitants, including Atlantic City, should establish municipal institutions for the care, maintenance and training of their feeble-minded. To these institutions should be sent the children from adjacent districts where there are too few to warrant institutions, and the general Department of Charities and Corrections of the State should have supervisory powers to see that proper standards of care are maintained.

Up to this point, the cost of maintenance does not fall upon the State, excepting for the small percentage of idiots and those who become sexually dangerous.

In the Training School at Vineland there are now 320 wards of the State. Of these, 160 come from cities of 25,000 or over. Thus nearly one-half of the cost would be scattered among the cities of the State.

As soon as the cases in the city institutions pass the age of advantageous training, they should be transferred to the State's custodial institutions where they could be kept permanently, leading lives of happiness and insofar as they are able, of industry. The money that had been spent for training need not be lost, for with shops, extensive farm lands, poultry and dairy houses these adults can under proper direction and guidance contribute much toward their own support.

If I may make a suggestion in closing, it would be that the State could hardly do better than establish colonies in those sections where there are thousands of acres of waste land, and set these men with the bodies of adults and the minds of children, to clearing up and draining. Here under suitable direction, they could be of immense economical value to the State and the occupation would be of such a sort as to keep them strong and happy.

The acres of scrub oak and pine could be transformed into truck gardens and farm lands, and even the Jersey mosquito can be driven from its sronghold by the so-called inefficients. How vastly better to burn brush than to burn buildings, or to destroy useless scrub trees than to destroy property. They do not need elaborate buildings but are happiest in the rough but clean and sanitary shacks, such as are now put upon their camping grounds. They need out-of-doors, fresh air, and properly controlled exercise. The plan could not fail with the State behind it.

What are *you* going to do about it? To say it sounds good and then forget it, means that you have wasted the last half hour. If you act; call it to the attention of your local authorities; speak or write to your legislators about it; keep the matter in mind and personally take some step toward its accomplishment, then you will be fulfilling your duties of citizenship. You will look with a far-seeing eye toward the solution of the problem of the defective classes and to the reclaiming of vast stretches of waste land.

The waste product of humanity shall become valuable, making the waste products of nature valuable.

THE CONSEVRATION OF YOUTH*

BY

GEO. W. FITCH, M. D.
Daretown, New Jersey

Conservation, as a word, has become popular since its introduction, some few years ago by Roosevelt, as applied to National resources, but, so far, it has not been applied specifically to the greatest of all national resources—the child, that enormously important factor in our body politic that, according to its conservation or the lack thereof, becomes for this great business country of ours, an asset or a liability.

This subject is to be approached with some natural diffidence upon the part of one who, whatever his ideals, formulated through some twenty-two years of busy medical life, feels that only the trained sociologic investigator is capable of presenting this subject in all of its important aspects; yet, on the other hand, the welfare of the child cannot be altogether safeguarded by a coldly scientific handling, but a certain amount of practical, human, sympathetic interest must be injected into the question in order that a full grasp of the subject may be had by the lay individual most interested—the parent.

As a general practitioner, therefore, who has gradually formed ideals as to what the child should be, in its relations to its parents, its fellows, and the State, and not as a specialist in the upbringing of youth, a few ideas are here presented as to the proper environment of the child through its various contacts in life—its home life; its school life; its social life; its business life.

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*Read before the New Jersey Medical Society at Spring Lake, June 12, 1912

The State, it is true owns the child, to a limited extent, in that we have agreed, in this country to delegate to certain public officials the duty of safeguarding its health, its occupation and its pleasures. Whether we will ever reach the point of surrendering full control to the State depends upon how far paternalism in government will be allowed to extend in this country.

That the future citizen may have that physically ideal condition, "Mens sana in sano corpore,"—a sound mind in a sound body, we must, some day, see to it that it has good grandparents, as well as see to it that the fathers do not eat of sour grapes, and that the children's teeth are not set on edge. Every parent knows the sorrow of an indiscreet parent in finding, in the child of his loins, the marks of an ill-kept or an ill-used body on the part of himself or an ancestor. May the day soon come, and the writer knows that all medical men agree with him in this—when the non-reporting of syphilis and gonorrhea will be punishable by law along with tuberculosis, and all other forms of inherited scrofulosis; for a man may indeed be "The captain of his Soul," but he is far from being the "Master of his fate," and still less should it be in this power to force—even in ignorance—upon his offspring the fate of the unfit.

The State cannot, and some day will not, have thrust upon it a mass of unfortunates to be carried along at the expense of the healthy taxpayers. The rule along all lower forms of life of the survival of the fittest cannot be applied to human life in its latter day development of altruistic endeavor for the betterment of the race.

No one, so far, has been given the legal right to destroy a defective, and so each of the unfit must be an increased and unjust burden upon the taxpayer. No man should be considered as living up to his full duty except when producing—whatever his field may be, either of brain or muscle—up to his full capacity.

That this great country may live up to its destiny we should have a physically perfect body of citizens, and that we may have such a citizenship, eugenics must play a large and increasing part in our scheme of things.

Eugenics is a branch of biology, and is an analysis of the agencies under social control, that can favorably or unfavorably effect the mentality or physical condition of the unborn. We can not have national greatness unless bottomed by sound men and women; the home must be made and peopled by posterity from good parents. The posterity-effecting agencies under social and individual control are many; food, drink, sanitary conditions, housing and occupation are factors that go to make the mentality, and form the physical. The subtal factor of heredity is shown by a study of health, school, and census reports. Recently, England has been intensely interested in her low and decreasing birth-rate; also a decrease in mental and physical quality. Naturally, the question comes to one's mind, what is the cause? One investigator claims legislation in restricting child labor, or, in other words, in penalizing parentage and placing an economic value on the child. The science of eugenics shows us the effect of a strange natural law of primogeniture. It shows that the physical and mental condition of the first and second born is sharply differentiated from that of the later members; for example, insanity, tuberculosis, criminality and albinism when found, predominate over those born later. These factors are merely stated to show what an immense problem we have before us. Let us strive to avoid collision with the immutable laws of nature, and in so doing we will lessen the tendency to degeneracy and raise the standard of mentality.

Here then is a tentative scheme for the conservation of youth:

The training of the child should begin with its parents. A clean mind and a clean body cannot produce other than a clean child. The parents should take thought as to what he owes to his future offspring. No sane and sympathetic father would send his son into the business world without outfitting him first, mentally and physically, to the best of a father's ability. So should the parent view the welfare of his future offspring.

Heredity is the capital a child has, to enter the world, and environment is the organization of that capital into working form. With these two fundamental factors of his equipment properly prepared, his battle of life is half won.

The pregnant mother should, until we definitely know that maternal and parental influence have no weight, be cared for as the precious receptacle of that priceless gift of God—a human soul. By cared for we mean a commonsensed avoidance of worry, excitement, or injury. The old Roman idea that a pregnant woman was sacred as one bearing a future citizen, and possibly, a Caesar, cannot be improved upon.

The birth of a child should never be entrusted to an ill-trained midwife, nor should the care of its new born body be submitted to the so-called experience of a granny who works by rule of thumb, superstition, and ignorance.

Food, clothing, bathing, exercise, rest, bodily functions, should all be under the supervision of the family physician, and he himself should be selected for his fitness to assume these serious responsibilities.

Superstitions, fads, fancies, and fallacies should be allowed no place in the care of the new born, and it is largely due to the laxity of our own profession that these errors of mind have so long held their place in the child's environment.

The children of indigent parents should be cared for in ideal institutions of the State in order that the young of such unfortunate parentage might atone, by their subsequent value as efficient, for the unfitness of their progenitors.

Medical inspection of schools should not consist merely of a hunt for disease, but should also include a masterly instruction as to normal functions and surrounding conditions.

A well equipped doctor is the proper one to direct as to the grade, time, and quantity of a child's studies; personal as well as school hygiene; the amount and quality of physiology to be taught, the expansion of the ideas in sexual physiology as first taught by the parent.

A school room should have its light coming through skylight, or windows near the ceiling.

As the human animal was originally built to breathe the outer air only, rather than that of the so-called produce of civilization —a house, the air of the schoolroom should be rapidly and frequently changed without the introduction of draughts or dust.

The temperature of the school room should never leave the pupil's feet cold and his head hot with the products of the furnace combined with the expired breath of his fellows.

The convict-like system of confined rows of seats created by the over crowded class rooms should be changed to a mind-resting irregularity of freedom—giving tables and chairs, and the back-breaking bench be relegated to the limbo of the warming pan and the candle stick. Thus will the twisted spine be obviated.

The archaic physiology as taught at present should be replaced by a commonsensed demonstration, with illustration by means of models, of the important parts and functions of the body, and thus avoid the absurdity of having a child write, in its examination papers: "A skeleton is a man with his insides out and his outsides off," and: "The vertebral column is a string of bones that keeps your legs from running up to your neck."

As the writer argues that the parent should first, in the home, open the door of knowledge of the sexual organs and their functions to the child, so the medical inspector should expand and develop the newly acquired ideas in order that youth, by knowledge, may avoid errors and appreciate responsibility in this direction.

Jack and Jill probably fell down on their duty because they were not playing, and came to grief because the bucket of water and the hill had been given to them to negotiate without a touch of sport included. No wonder Jack was a dull boy, from his broken crown, because his was all work.

The child should be encouraged to play as hard as he works, at least, and a large proportion of its time should be generously allowed it for amusement, for we adults know that all too soon the golden hours of irresponsibility pass and the heavy duties of life begin by taking both taste and opportunity for play from us.

To bed with the chickens and up with the sun is a good rule for the child, for its active and growing body needs much of "Tired Nature's sweet restorer, balmy sleep."

The "Bad boy" in school is not a bad boy, but simply one seeking, unconsciously, an outlet for his energies, and for him should manual training be provided. Experience has shown that the so-called bad boy, the truant, the unruly, impudent or lazy boy becomes a model when tools are put in his hands and he is allowed to use his muscle on tough oak with a chisel and mallet, or a hammer and nails or saw, and taught useful arts; and no greater punishment can be inflicted upon him than to debar him from the manual training bench.

Dancing, under proper supervision and at proper hours is a great benefit to the young. No one ever suffers from indulgence in the social graces. This does not imply a recourse to the public dance hall, the moving picture show, and other forms of pernicious intercourse which are distinctly harmful both morally and physically.

No child should enter school before the age of seven or eight years. The five year old youngster is usually sent to school to get rid of it at home for the day, and the result is that it comes to a period of mental stagnation at the age of eight, where it is rapidly outstripped by the child just beginning at the age of eight up to the latter age, the child's brain is fit only for play and the kindergarten at most—education, in other words, solely through its environment.

So with business. No child should be allowed to engage in money earning occupation until the age of sixteen at least. Up to that period it has not had sufficient education to fit it for this increasingly difficult contest in life of ours, and were the business age set at eighteen, all the better, for the human race.

An undertaught child and an overworked youth are both badly off in the competition for existence.

The hygiene of the factory, office and workshop should also be in the hands of the trained medical man, but as it lies more particularly within the province of those who should have charge concerning the welfare of older youth, lack of time will preclude extended discussion of this phase here; a future paper will, perhaps, present this part of an important subject more thoroughly.

The morals of the young, when guided along the aforementioned lines, will need little more attention until the individuals are old enough to care for them on their own account.

Comparisons have been drawn between the morals of urban and rural youth, to the detriment of the latter, but morals depend largely upon the amount and kind of mental occupation, and when the country boy finds his time filled with congenial mental effort, and attractive physical endeavor, his morals will take care of themselves, without the need of the police supervision so often found necessary in the case of the city boy.

In conclusion, the writer feels that the present system of conservation of youth is one of drifting, largely, and it needs reorganization along sane and commonsense lines to produce the results that these United States obviously needs, namely, a careful trained supervision by the qualified medical man, over the physical department of the education of the youth of America, which will work for that ideal we all look to—A Commonwealth composed of mentally and physically sound men and women.

THE STATE'S RESPONSIBILITY FOR ITS SCHOOL CHILDREN*

BY

WILLIAM GRAY SCHAUFFLER, A. M., M. D.
President of State Board of Education
Lakewood, N. J.

In this symposium the various phases of child life are to be dealt with from many different standpoints. The general practitioner, the municipal executive, the medical inspector, the surgeon, the dentist, the specialist in defective children and others will each have his say. My task is to present to you the child in his relation to the State, or rather the State's responsibility to the child.

Our own State of New Jersey stands preeminent in its care for the children of school age. It leads not only in its wise laws providing for their education, but in the provisions made for their physical care and wellbeing.

The medical inspection law, passed three years ago is a model for the entire English speaking world. The building code, which has just been revised, and is about to be given out, provides in the plainest terms for school buildings that shall be properly lighted and heated, and shall be sanitary and perfectly safe from the risk of fire. The school laws of our State are being constantly reinforced with a view to providing a more intelligent teaching force. Manual and industrial training in the public schools, as well as in vocational schools, is receiving constantly greater and more intelligent attention.

County teachers' institutes and vocational summer schools add to the equipment of our teachers. And a healthy interest is being stimulated in our public prints by frequent and timely discussions of school matters.

What I want to accomplish in the few moments at my disposal is to bring to the notice of you medical men of this State some facts relating to the machinery of the State school system, and to call your attention to the bearing these facts have on the health and future usefulness of our children.

The educational interests of New Jersey are in the hands of a State Board of Education, consisting of eight men, appointed by the Governor, and serving without compensation. With them there is associated a Commissioner of Education, who acts "with the advice and consent of the State Board of Education" and who has four deputies, one each to attend especially to matters dealing with,

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*Read before the New Jersey State Medical Society at Spring Lake, June 12, 1912.

1st. **Secondary Education,** (High Schools.)
2nd. **Elementary Education,**
3rd. **Industrial Education, including Agriculture.**
4th. **Controversies and Disputes.**

Next in order come the 21 County Superintendents, whose function is to supervise conditions, each in his own county, and report to the Commissioner, and the City Superintendents, who perform a like duty in most of the larger cities. Subordinated to the superintendents we find the supervising principles, the principals and the grade teachers. Thus there is direct touch between the State Board of Education and the teachers of the grades.

The State Constitution, in Section VII, declares: "The legislature shall provide for the maintanence and support of a thorough and efficient system of free public schools for the instruction of all children in this State between the ages of five and seven years."

This provision has been carried out with an ever increasing sense of responsibility on the part of those in authority. As the public mind has become progressively aroused concerning such subjects as the kindergarten, better sanitary conditions, protection against fire risks, medical inspection and prevention of epidemics, we find that laws have been passed giving the State Board of Education power to act for the good of the children. Occasionally we hear the cry raised against increasing "paternalism" on the part of the State and its school authorities, but the majority of the thinking men and women of the State cannot help realizing, that only by increasing the central power can the best results be obtained.

As long as the responsibility for carrying out the provisions of the Constitution in regard to the care of the school children lies with the State Board of Education, it is only fair that the public should carefully study the situation, and then with all its power help the Board carry out the law.

Just at present there are several problems engaging the attention of the school authorities, which should be of especial interest to us as medical men.

A recent law makes it obligatory, in districts where there are found to be more than ten children three years or more below their normal grade, to establish special classes for such children, in which those who are capable of being helped can quickly regain their normal grading, and those who are unfit to go on with others of their age and size can have individual instruction, which will be of use to them in the future. The difficulty confronting the school authorities is twofold:

1st, a lack of understanding on the part of parents of the good to be accomplished both for the backward children, and for the normal ones, who by reason of these classes are freed from the burden of these *laggards* in their classrooms.

2nd, the difficulty of securing properly trained help in ascertaining who are the deficient children.

You members of this society, and all public spirited medical men in the State, can be of the greatest possible help, if you will lend your influence in making clear to your communities the importance and necessity of this provision of the law, and further, if you will occasionally by advice and counsel assist in making the necessary scientific classification.

Again. The changes in the building code, which is about to be promulgated, are meeting with the same opposition from many taxpayers, that all improvements involving an additional outlay of money invariably provoke. Here too the medical men of the State can be of the greatest help to the authorities, by using their influence among patients and friends to further the cause of health and security. Inform yourselves carefully of the provisions of the law, which demand ample floor space, sufficient light, sanitary toilet and drinking facilities, truly fireproof fire escapes, and then make it a point to speak of these things as you go about among your patients, and you can do the cause of true education no end of good.

One point more, and I am done.

Remember that with all its power, the State can do no more for the individual child in school, than the voters of the district in which the child lives will stand for. The amount of a given teacher's salary is fixed by the voters of the district. Where the teacher is paid starvation wages, (and I blush to tell you that in one of the counties of this State, the salary of a teacher is as low as $270.00 a year) through a false sense of economy on the part of the taxpayers, the children of the district will receive instruction commensurate with the teacher's salary.

No man in a community can exert more influence for good or bad than the people's medical adviser. Let us then, as the representative medical men of New Jersey, see to it that we exert our influence to raise the standard of education throughout our State.

SKIN AFFECTIONS OF CHILDHOOD*

BY

H. J. F. WALLHAUSER, M. D.

Newark, N. J.

The skin during childhood presents many interesting studies. Beginning with congenital deformities in its histological structure, we have next those conditions calling attention to an inherited predisposition to certain ailments, and closely allied to this class conditions of a perverted functional character; next we include the diseases of direct transmission in utero, and finally many acute inflammatory and infectious diseases peculiar to infancy as the result of the more sensitive nature of the skin during this period.

The affections of congenital abnormality in the histological structure consists mainly of the various forms of nævi clinically differentiated, according to their origin, from the various elements of the skin structure, as angiomata; lymphangiomata; fibromata, etc.; moles are also included in this group, consisting histologically of rows of cuboidal cells, the origin of which has given rise to considerable discussion on account of the possibility of their taking on malignant changes later in life. The character of the malignancy was formerly described as sarcomatous, but is now quite generally accepted as carcinomatous, inasmuch as the growths are at present considered as of ectodermic origin; in addition to these cells they also contain a varying amount of pigment and hairs.

In the treatment of nævi, we are guided by the character and extent of the growth. Small superficial vascular nævi (the so-called port wine mark) may disappear spontaneously, but the more pronounced types, as the cutaneous and cavernous varieties will generally extend if allowed to go untreated. Either excision or electrolysis has been advised, and both are still employed; the method of freezing, however, as advised by Pusey of Chicago consisting of the application of carbon dioxide snow has proven so successful, that it has nearly superceded all other methods. The objection that prevailed regarding the method of freezing by liquid air, namely, the obtaining of the material, is now removed by this method, and is easily within the reach of all, requiring only a small piece of chamoise and a tank of carbon dioxide such as is supplied to druggists for charging soda fountains, or it can now be obtained in smaller amounts from automobile supply houses where it is sold for inflating tires. The chamoise is tightly applied to the outlet of the tank leaving a small space for the snow to collect. A little experience in the proper application of the chamoise will easily enable one to get a good hard piece of snow, which can then be cut in pieces to suit the size of the nævus to be treated. It should be applied with firm pressure for periods varying from ten to thirty seconds, depending on the amount of destruction that is desired. The resulting lesion is first a depression which gradually disappears, giving place to the formation of a wheal which is followed by a bleb or superficial ulceration. The latter is the result of too long an application and is not desirable nor necessary. For small superficial nævi, one or two applications at intervals of several weeks will be sufficient to cause their complete disappearance. The deeper variety, however, will require longer applications, and the intervening periods should be lengthened, permitting complete resolution between each treatment. This method can be applied to all forms of nævi, but in the pigmented variety where hair growth is present, the combined method of electrolysis for the removal of the hair and the destruction of the remaining lesion with the actual cautery is best adapted, as carbon dioxide snow does not destroy the hair.

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Hereditary predisposition is well exemplified by the condition defined as epidermolysis bullosa hereditaria signifying an extraordinary vulnerability of the skin to the development of blisters. It is present at or shortly after birth, and continues throughout the life of the individual. Patients suffering with this condition are seldom free from bullæ, mostly on exposed parts as the hands and face, which result from the slightest knock or friction. Very little, if anything regarding its etiology has been advanced, but that it is strongly hereditary is evidenced by its appearance in several generations of a family. Its treatment is likewise very unsatisfactory, nothing except protection form injury having been devised.

Of like hereditary predisposition, we can include the peculiar progressive malignant pigmentary eruption designated as xeroderma pigmentosa for which Kaposi has advanced the theory of a perverted congenital formative and nutritive disturbance in the vascular and pigmented portion of the papillary layer. The disease usually begins during the first or second year, presenting the appearance of ordinary freckles, mostly on the exposed parts, as the face and hands, gradually telangiectases are noticed and atrophic areas develop presenting a cicatricial like appearance. The freckle like spots now increase and appear to coalesce, pigmentation is mainly limited to exposed areas, but may occasionally be observed on covered portions of the body; after months or years these pigment spots become elevated, thickened and papillomatous; the atrophy continues, developing ectropion and cicatricial like contraction of the mouth and nose; after several more years, the papillomatous lesions develop malignancy either of epitheleomatous or sarcomatous character, and the patient gradually succumbs. The disease is very gradual in its development, usually running a course of from ten to thirty years. Other conditions may be included in this class, as Recklinghausens disease in which a progressive fibrous tumor growth in the main feature, also congenital xanthoma characterized by gradually developing yellowish pin head to split pea sized nodules; we may also add adenoma sebaceum, an affection associated with low mental development. The skin manifestations consisting of small waxy, yellowish nodules with telangiectasis, giving them a pinkish aspect. The eruption involves the centre of the face, a few lesions are usually present at birth and continue to increase in number, development being most active about puberty. This condition while quite rare in this country is common abroad where it is most frequently observed in asylums for imbeciles and epileptics.

Passing next to congenital functional disturbances, we find conditions pointing to errors in physiological equilibrium of which icthyosis with its various clinical gradations form a good example. While all are not agreed as to the underlying cause, evidence from microscopical investigation and clinical observation would seem to establish an inactivity in the sweat and sebaceous glands which Unna found atrophied. Keratotic changes in the epidermis are also found, but are probably secondary to the above. The condition is evidenced shortly after birth, by a dryness of the skin most evident in locations where the epidermis is normally most dry, as on the extensor surfaces; dry horny plugs develop in the follicles, most noticeable about the shoulders and extending down the arms. Some cases remain quiescent at this stage, during the summer months on account of increased physiological activity in the sweat function, the skin becoming soft and pliable, and during the colder,months reverting back to the dry and more or less scaly condition. This mild variety is commonly considered under the title xerodermia, which, however, should be eliminated, as it is generally accepted as differing from the severe type only in degree. From this mild variety there are all grades of cases, the skin becoming more scaly in the severer types. In the most pronounced cases, large horny masses may be seen in which the natural lines have become accentuated, developing a resemblance to the scale like skin of fish, from which the denomination of icthysosis originated. Patients suffering from this condition are usually prone to dermatitis from the slightest cause, as exposure to high winds, soaps, water, etc., but otherwise are not greatly troubled except in the very severe type in which weather changes seem to have a marked effect. During very hot weather a feeling described as though they were burning up is accompanied by extreme exhaustion, the patient becoming greatly depressed and melancholy. In all cases treatment should be advised, unfortunately, however, there is very little, if any hope regarding a cure, but much can be accomplished to render the patient comfortable. Internal medication including pilocarpin, cod liver oil, iron, thyroid extract, etc., are advised, but it would not seem probable that anyone could be induced to continue these measures through a life time, and furthermore the temporary alleviation that may result, for example from the use pilocarpin or thyroid extract is soon followed by a reversion of the symptoms when these drugs are discontinued and add to the discouragement of the patient. We must therefore, rely on external measures which are really not more troublesome than bathing and usually quite effective. Any of the fatty media may be employed, such as cocoanut oil, petrolatum, cold cream, etc., any of which persistently applied will tend to keep the skin soft. During the past few years I have employed the following plan with very gratifying results: A mixture of resorcin, glycerin and water is adjusted in the relative quantities to suit each case, and applied once a day, or at longer intervals after relief is obtained. In mild cases a three per cent. mixture of resorcin with about ten per cent. of glycerin is usually effective; in the severer types, the resorcin is increased to six or ten per cent., and more glycerin added until the proper amount to keep the skin soft and pliable is found, which is then continued at intervals indefinitely as required.

The two conditions entitled icthyosis hystrix and icthyosis congenita or Harlequin fœtus, should not be conflicted with the condition above considered. Icthyosis hystrix is really a form of nævus which occurs in roughened, papillated, keratotic patches, or in bands or streaks which are said to follow the course of the cutaneous nerves.

Icthyosis congenita also termed intrauterine icthyosis while considered as a severe type of icthyosis which is present at birth fully developed should not be so included for it is always fatal, the child being born dead or succumbing shortly after from inanition, while icthyosis begins gradually during the first year and never directly causes death. Harlequin fœtus is more than likely due to some indefinite inhibition with normal development in the epidermis than to functional disturbances of the sweat and sebaceous glands as ascribed to icthyosis.

Of the diseases of direct transmission in utero, we include all such infectious conditions of which syphilis and tuberculosis constitute examples, not forgetting however, that many cases formerly considered as hereditary are now known to result from infection after birth.

In considering syphilis regarding hereditary transmission, we find a great change in the views previously held. We now feel reasonably certain that nearly all children born of syphilitic parents in which the disease is active, have aquired the disease. Due to the advent of sero-diagnosis, Profetta's law which claimed that an immunity was present in a great majority of children has been disproven, we should therefore, regard each case as syphilitic unless disproven by continued negative findings. In the light of present day knowledge, it would certainly seem that we were not fulfilling our duty to the offspring were we to wait for the appearance of the clinical evidence of the disease before instituting treatment in cases giving a previous parental history of this disease.

The skin eruptions are characteristic, and when considered along with the typical emaciation producing the marked old man like expression of countenance, little difficulty is encountered in diagnosis. The degree or intensity of the infection, however, varies considerably. In the most pronounced type, the eruption is usually bullous in character and may be present at birth, these cases seldom go to full term, and if they do, generally succumb shortly after. This form of eruption is generally referred to as syphilitic pemphigus. Most commonly the child is born apparently healthy, and after several weeks gradually develops the characteristic nasal affection termed "snuffles." The child which may have been plump and well developed now gradually looses flesh, and in general appearances becomes greatly altered; the lips become fissured, the palms and soles wrinkled, and a more or less marked change in general color of the skin takes place which is best described as resembling old copper; the skin eruptions now appear consisting most commonly of the dark brownish papular type, and although the eruption may be erythematous, vesicular or pustular, the papular type is most common and usually forms a part of any of the other eruptions as well; the sites of predilection are the locations about the buttocks, abdomen, perineum, forehead and around the mouth, in the latter location circumscribed infiltrated areas are commonly formed traversed by fissures. Around the anus the papules are larger and present a boggy moist aspect, commonly referred to as condylomata lata. The late types of eruption common in adult cases, as tubercular infiltrations and ulcerations are seldom if ever seen in hereditary cases, although gummatous lesions are occasionally encountered. On the disappearance of the early eruptions skin symptoms generally cease, the disease manifesting itself by various other signs of degeneration, such as poor development, affections of the eye and ear, periostitis and visceral involvements. The prognosis is usually considered grave, but with the improvements that have recently resulted in the treatment, we can expect this phase of the question to assume brighter prospects in the future. Better supervision by intensive and continuous treatment of the mother during pregnancy should receive our attention more earnestly than has been the custom in the past.

Tuberculous skin affections during childhood demand our especial attention for it is at this period that much can be accomplished in arresting the progress of the conditions concerned in this deforming process, and thus also aid in the prevention of secondary constitutional involvement. The skin lesions are at present considered under two divisions; in the first, those in which the tubercle bacillus has been demonstrated; and in the second, the various conditions invoked by tuberculous toxins.

The first group includes lupus vulgaris, scrofulodermia and the extensive though rare form of tuberculous ulcer.

The second group consists of a class of affections that are at present being considered under the broad designation of tuberculides. While the tubercle bacillus has not been demonstrated in these lesions, the percentage of cases having a strong hereditary history and the frequency with which these affections occur in connection with other manifestations of the disease, as bone lesions, etc., is strongly suggestive of their relationship to tuberculosis. Various forms are encountered consisting of rather insignificant eruptions which might readily be passed by without notice unless one is on the lookout, or some other malady calls attention to the skin condition. The mildest type consists of small pinhead sized papules of pale yellow or reddish brown color, arranged in groups varying in size from a few papules to lesions of several inches in diameter, chiefly seen on the trunk and extremities, the papules follow a very indolent course of months or years, eventually disappearing by desquamation. To this type the term lichen scrofulosorum has been applied, while acne scrofulosorum is applied to a type of eruption consisting of pinhead to hemp seed sized, pinkish papules located deeply in the skin, also with a tendency to appear in groups. The papules in acne scrofulosorum run a course of four or five weeks, gradually developing central necrosis, and disappear with more or less scarring and pigmentation; new lesions constantly appear giving a symptom complex of slow evolution, as a constant feature of this condition, the recurrences have been noticed especially to follow the exacerbations in constitutional cases of tuberculosis.

The term acnitis has been applied to a similar eruption to the above, but showing a predilection for the central part of the face, while follicles is applied to an eruption with the same general characteristics, limited to the extremities. In all, excepting lichen scrofulosorum, the common lesion is a very slowly progressive papule with a tendency to central necrosis and scarring.

Of the conditions in which the tubercle bacillus has been demonstrated as the direct cause, two main facts arise; first they can all result from direct transmission in utero; and further, as in the case of lupus vulgaris and tuberculous ulcer may also be acquired by direct infection after birth. Although an hereditary history can usually be obtained in the latter, it is not always possible, and so we must deduce that in lupus vulgaris and tuberculous ulcer, we may frequently have to consider the condition as the primary site of infection. The importance of early recognition therefore, is clearly evident.

Scrofuloderma begins in the lymphatic glands or in the subcutaneous tissue causing by extension to the skin indolent purplish red elevations, pierced by numerous sinuses; they are most commonly seen on the sides of the neck accompanied by cervical adenitis.

Lupus vulgaris appears as small nodules that on account of their peculiar reddish brown semi-transluscent appearance are generally referred to as "apple jelly like," which best describes the color of the clinical primary lesion of this condition. It begins as one or more nodules preferably on the cheeks or nose, that run a very indolent course of months or years, then gradually ulcerate and others appear, resulting finally in extensive atrophic areas.

The nodules histologically are typical of tuberculosis consisting of lymphoid cells, plasma cells and giant cells in which the tubercle bacillus may be demonstrated. The epidermis becomes thinned and stretched owing to the cell invasion, which accounts for the transluscent appearance of the nodule. Then gradually ulcerates as the infiltration advances, the process terminating in cicatrization. The rapidity of extension varies considerably; in some cases the nodules remain almost stationary for months or years, while in others, patches varying from one to several inches are developed in a few months. The disease is generally progressive, and its destructive tendencies are manifested by the resulting loss of the nose, ears, lips, etc., in cases that go on unchecked.

Accompanying lupus vulgaris or occasionally appearing as the only clinical lesion, we have the condition termed lupus verrucosus, instead of the lupus nodule, the lesion consists of a keratotic or wart like growth of dirty grayish aspect with a dusky red base, varying in size from a split pea to several inches in diameter; in other cases extensive ulcerations constitute the clinical condition. They result from degenerations of gumma like formations producing ulcers with undermined elevated borders, in which new foci are constantly breaking down, while the central portion is being healed over with cicatricial tissue. This is a very severe form of infection, and usually terminates fatally after several years.

The treatment of tuberculosis of the skin does not differ materially from the plan that has been adopted for its constitutional manifestations; the measures advised for nutritional improvement will apply equally well to the skin lesions of the disease.

The tuberculides are interesting from a clinical standpoint as especially calling attention to the importance of careful supervision in regulating the habits and improving the surroundings of the patient in order to avoid more serious constitutional involvement.

Lupus vulgaris and its variations will demand additional local treatment, and our efforts should be extended to recognize the condition as early as possible, for if we are fortunate enough to have treatment begun when only a few nodules are present, a perfect result can easily be obtained by simple cauterization or curettage. Unfortunately these cases seldom come under observation early enough, usually being considered as insignificant, and indeed the onset is exceedingly trivial in appearance, we should, therefore, regard every indolent papule with suspicion. In cases that have progressed to an extensive degree, cauterization will be found impractical. Various methods such as the application of arsenious acid, salicylic acid, etc., are employed as destructive agents, also burrowing the nodules with a dental burr dipped in carbolic acid and many other similar means are advised, but it is generally found that the pain caused by these measures renders their use more difficult with each application, until the patient finally refuses to submit, or disappears to follow some less painful even though useless plan of treatment.

To Prof. Finsen we are indebted for a method of treatment by exposure to the actinic or chemical rays of the spectrum in which the arc lamp is employed and which is beyond doubt the method of choice in treating this condition. Its application is painless and the results are brilliant. The expense of proper installation is the only hindrance to its general use, modifications have been attempted, but none have been found efficient. It would seem that some of our large cities should be able, even though necessary by popular subscription to install this apparatus. At present there is none this side of Copenhagen. The success that attends its proper application can only be appreciated by those who have seen the wonderful results of this treatment in extensive cases. Before leaving the subject of tuberculosis just a word regarding the use of tuberculin.

Some years ago, Sir T. McCall Anderson in a article on the treatment of lupus made a plea for the more general use of tuberculin by the profession, emanating from the excellent results he obtained by its use. He elucidated again the fact, that improper dosage alone was responsible for the bad results reported in its early administration. The photographs shown in connection with his article would certainly tend to prove his claim, as the improvement was uniformly good in all cases treated. Extremely small doses were given in the beginning, gradually increasing until a slight reaction was obtained, the intervals in treatment being judged by complete disappearance of the symptoms of the reaction before another injection was given. Reasoning from the results he obtained, it would seem to warrant the deduction that early constitutional cases could be cured by this method, as he often found foci in the bones or lungs following its use in lupus cases that were not clinically evident before treatment, and which usually cleared up along with the skin condition. He began treatment in adult cases with either one-quarter or one-half cc. of 1-1000 old tuberculin.

Coming now to conditions peculiar to childhood on account of the more sensitive nature of the skin, we find a group of conditions while not differing materially from those of later life, yet occur more frequently, are more easily induced and in a few instances at least, are limited to this period; here we include conditions due to various mechanical irritations as occur from clothing, irritating discharges, heat, cold, sunlight, etc., producing more or less acute inflammations; in this class we also add the various local pustular infections as impetigo, distinguished by its classical superficial yellowish isolated crusting located about the centre of the face, forehead and fingers; also the closely related condition ecthyma, which term is applied to the deeper variety of infection occurring mostly on the lower extremities. In pemphigus neonatorum we include another condition of like origin, commonly seen immediately following birth. This affection was generally considered as a constitutional disease, but is now accepted as a local infection closely allied to impetigo, similar organisms (strepto-coccus) being found in each, yet it is a far more serious malady than impetigo, generally terminating fatally accompanied by symptoms of general pyæmia.

Ritter's disease consisting of a generalized exfoliation of the skin which has been compared to the above, is more than likely an entirely different affection, lacking as it does the isolated spreading bullous character of pemphigus neonatorum.

Secondary pustular infections commonly occur in connection with puritic diseases, also added infections may result in vesicopustular conditions producing changes of a classical character, as for example, the condition described as Bockhart's impetigo in which the follicles are mainly involved in a pustular inflammation commonly accompanying impetigo; also the condition described as dermatitis gangrenosa infantum as a secondary process in varicella and other bullous conditions. In addition to the above cases are seen with indefinite pustular eruptions that are impossible of classification and for which the broad term classifying them under the head of pyodermias seems warranted.

In the treatment of pustular affections, remedies grouped under the general head of antiseptics are employed, a few conditions, however, as for example, impetigo, have been advanced to a plane where certain remedies have been found more efficient than others; ammoniated mercury in about three per cent. strength incorporated in zinc ointment applied to each area of infection will usually succeed in arresting the disease in a few days; for the deeper infections sulphur or its derivatives are usually more effective; and in intractable cases, the various vaccines should be remembered.

In contradistinction to pustular affections, we have next to consider conditions of a scaly type as exemplified in dermatitis seborrhœicum clinically consisting of a superficial inflammatory process accompanied by scaling of a more or less fatty character. This condition always appears first on the scalp and spreads to other locations, as the face, chest and back, where it forms quite sharply defined, pinkish, scaly patches; it may also involve the locations behind the ears, axilla and flexures of the joints as a moist dermatitis. In mild cases only a slight pityriasis may be present, while in the severer types the whole surface of the scalp may be covered with masses of grayish or yellowish crusts. To Unna we are indebted for the separation of this affection from eczema, and the correlation of many conditions formerly considered as separate affections. This condition is especially interesting for it is of very common occurrence during infancy, constituting a large majority of our cases of so-called infantile eczema; if unchecked, it persists forming infiltrations indistinguishable from eczema due to other causes. It is also now regarded as the most common cause of baldness, early evidenced by a dryness and lusterless character of the hair, which gradually falls to be replaced by hair of finer calibre, until finally about middle life, it ceases to regrow and the follicle and gland disappear in atrophy. The process of gradual destruction consuming years, or in very active cases the hair may even be noticeably lessened in a few months.

Its treatment is simple and effective only requiring the application of a mild resorcin or sulphur ointment, combined with thorough and frequent washing. In the severe inflammatory cases accompanied by exudation, a mild boric acid ointment should be applied until the acute stage has subsided.

Having now briefly considered the various inflammations, we naturally think of the multiform inflammatory condition to which we apply the term eczema. The etiology of this condition has been studied perhaps more and from every possible view, than any other known condition of the skin, and yet no very definite solution as to its etiology has been decided. An hereditary predisposition has been advanced by some, while nervous influences and toxic microbic infections have been advanced by others. It is generally accepted, however, as due to many causes both internal and external, and a predisposition is also granted in a majority of cases.

Unna is the chief advocate of the germ theory ascribing as the cause his morro-coccus, and while a great majority of cases can be traced to this source, yet many are observed as undoubtedly due to such primary causes as acrid discharges or secondary to other pruitic conditions, and while the latter can be disputed as true eczema, yet no clinical distinction can be made.

Of those opposed to the microbic theory, Jadasshon, Neisser and Sabouraud may be mentioned. They contend that the presence of micro-organisms in a primary inflammation precludes eczema, although they admit that a secondary infection may occur producing certain clinical changes in the eruption.

Eczema cannot be considered as an entity, but rather as the manifestation of a varied etiology, definite conditions gradually being separated from it as the various factors become isolated.

Briefly, it may be described as an inflammation of the skin producing various lesions, beginning either as erythema, papulation, vesiculation or pustulation, inclined to form patches which may be scaly, moist or crusted, resulting in infiltrations which may remain present for an indefinite length of time. This process may relapse to the more acute moist variety, or new lesions may develop on any part of the body and follow the course described above. This condition of relapsing and continuing by the formation of new lesions is the most characteristic feature of the disease, and separates it from almost all other forms of dermatitis.

In infancy it usually begins on the cheeks as an acute erythema, gradually developing raw, crusted, oozing surfaces. It may remain limited to these locations, usually, however, patches appear on various parts of the body.

In its treatment, while a great many conditions are considered in adult cases, only a few have a direct bearing during infancy. The main features consist of carefully avoiding all sources of local irritation, such as woolens, washing with soap and water, etc. Measures regulating the general health should be instituted, and the diet modified to suit the needs of the patient, being careful not to overfeed in those of robust constitution, as overfeeding undoubtedly tends to prolong the inflammations in many cases. A great deal may be accomplished to assist in the treatment by these measures, but the main requirements to successful treatment consist of its local management. The remedies employed should be of a soothing and protective character, stimulating applications such as are advised in adult cases are never required in infantile eczema. In the very active cases, a simple ointment consisting of boric acid, bismuth and benzoinated lard applied as lightly as possible, and then covered with a powder consisting of equal parts of starch and zinc oxide will be found to make a good protective covering. Fresh applications should be made three or four times a day as required, preceding each application, by carefully cleansing the parts with olive oil. After several days when the acute stage has subsided, a three per cent. aqueous solution of resorcin to which a little glycerin may be added is substituted for the olive oil as a wash, the ointment and powder being continued until the inflammatory or oozing stage has entirely subsided, when the ointment is omitted and the lotion and powder continued until all scaling has disappeared, and the skin has becone soft and pliable.

From the fact that so much is written regarding the treatment of this condition in which so many different remedies are recommended, the above plan will seem extremely simple, but if persistently followed, it will surely produce satisfactory results. Relapses are almost certain to occur, and will seem to require a change in treatment, especially on the part of the parents or those in charge of the case, but with the assurance that exacerbations in the inflammation were not unexpected and that a subsidence will rapidly ensue, is usually sufficient to establish confidence and willingness to continue the plan. Prutitus is always an annoying symptom, and very strenuous measures are advised to prevent scratching, as handcuffs of card board, masks, mittens, etc., many of these measures are cruel and not necessary as the scratching is harmless, never leading to scarring, and if the above plan is diligently applied, will usually be found effective in allaying the severity of the itching in a short time.

Passing next to affections due to animal and vegetable parasites, of the former the most common are those due to the acarus of scabies; the achorion Shoenleinii of favus; and the pediculus of pediculosis capitis. Scabies is one of the most common infectious conditions encountered, especially in a dispensary practice, but is rather rare in higher life where cleanliness is more carefully observed. The diagnosis in childhood is oftentimes somewhat masked by the presence of secondary eczema and pustular lesions of various kinds, simulating impetigo, furunculosis, etc. The eruption is also more generalized than in adults, and frequently involves the face which is never seen in adult cases. Carefully isolating the burrow in the locations between the fingers, anterior surfaces of the wrists or upon the palms and soles will be the most certain method of diagnosis. Cases however, presenting a generalized papular eruption particularly involving the locations above mentioned accompanied by intense itching especially severe at night, should lead to the diagnosis of scabies. A mild sulphur and betanaphthol ointment containing six per cent. of the former and one per cent. of the latter applied at night for four or five days preceded by a bath and change of bed clothing and linens will soon clear up all doubt by causing a disappearance of the pruritis on the first application of the ointment, and complete cure of the condition in the time above specified.

Pediculosis capitis is a very common affection, and may be the factor in the production of pustular and eczematous lesions, especially at the nape of the neck and extending down the back. A localized inflammation in this location should therefore call attention to this condition.

Of the parasitic affections due to the vegetable fungi, ringworm and favus are especially diseases of childhood. Tinea versicolor erythrasma actinomycosis and blastomycosis are rarely, if ever, encountered during this period of life.

Ringworm has been clinically divided into types according to the location affected, due to the fact that it was supposed that the conditions designated as tinea tonsurans or ringworm of the scalp; tinea circinata or ringworm of the body; also tinea barbæ; and tinea cruris were all due to the same fungus. Sabourand, however, has clearly demonstrated that many different varieties are responsible, and has divided the fungus into two main groups; the large and small spored, each with numerous subdivisions. He has also shown that some varieties are found exclusively in human beings, while others are present in animals and communicable to man.

Clinically, no very decided distinction is made so far as ringworm of the body is concerned, although from an etioloical standpoint, we should bear in mind its possible origin from animals, as horses, cats, dogs, etc. In the scalp two main varieties are recognized with clinical distinctions. The most common being due to the small spored variety described by Gruby as the microsporon Audouini, clinically occurring as circular scaly patches containing broken off hairs. In the large spored type, the clinical manifestations consist of irregular and scattered patches in which only a few hairs may be attacked, giving rather a moth eaten appearance to the hair fall, than the sharply defined patches seen in the small spored variety.

The treatment so far as involvement of the general integument is concerned is very simple only requiring the application of iodine or any other anti-parasiticidal remedy for a few days, but when the scalp is involved applications that succeed in the former locations, generally either fail or require months and perhaps years before a cure can be affected. Of all the remedies that have been instituted, the X-ray seems best adapted, but must be applied with proper precautions lest permanent baldness results. The essential feature of the treatment by this method is depilation, thus getting rid of the fungus infected hairs. In the application of the X-ray in these cases considerable reaction is necessarily unavoidable, and bad results are thus often encountered. The use of some method of dosage is surely indicated, the pastilles of Sabourand and Noire have been devised for this purpose, and have been found sufficiently correct to warrant their use. They consist of small discs composed of an emulsion of platino-cyanide of barium in collodion and acetate of starch spread on bristol board, the X-ray having the property of changing the color of the discs, a standard tint of color during the application has been fixed to produce depilation at a single exposure. About fourteen to sixteen days after treatment, the scalp becomes more or less completely bald followed in four or six weeks by a regrowth of hair, and at the end of one or two months recovery is completed as evidenced by a regrowth of healthy hair.

Favus though quite common is far less prevalent than ringworm. Its recognition however, is far more important as permanent baldness results when it affects the scalp in untreated cases. The diagnosis depends on the peculiar depressions in the epidermis caused by the growth of the organism, giving rise to yellowish, cupshaped crusts, which on exfoliation are followed by permanent baldness. It is readily differentiated from all other conditions except seborrhea sicca in which yellowish crusting, and more or less baldness is sometimes present, but the classical, hard, dry cupshaped crusts as compared to the oily condition of seborrhea should easily establish the difference. The treatment, like ringworm is very tedious, the same measures as advised in the above condition being mostly successful.

In conclusion, many other skin conditions such as the toxic erythemata, including the various forms of purpura and urticaria; affections of nervous origin, as herpes zoster; Durhing's disease or dermatitis herpetiformis; the prurigo of Hebra; also such conditions as edema neanatorum; sclerodermia, etc., would be interesting in connection with this subject, but must be omitted on account of lack of time. It is hoped, however, that the conditions briefly outlined here will indicate to the general practitioner the helpful possibilities in this branch of medicine.

THE DOCTOR AND EUGENICS*

BY

T. W. HARVEY, M. D.

Orange, N. J.

This subject should commend itself for study to the physician because of its intimate relation to every phase of his profession. It may be approached from two sides, one, that of pure science, and here the study is a very erudite one, but one which is becoming more and more firmly founded on a broad and rapidly

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gaining substructure of well observed facts which are already well correlated and held together by certain thoughtfully wrought out theories. These theories and facts are well worthy the study of scientific men, and they furnish great opportunity for original research and the collection of more facts and for the development of broad generalizations which may be applied to the betterment of mankind.

On the popular side of this subject we have need of the careful work of thoughtful and sane men to prevent its exploitation at the hands of those, whose erratic minds seem to revel in the mysteries of the half light with which science illumines many of the operations of nature. Here they delight to increase the optical illusions and strange contortions of truth that we find in the shadows of the porticoes of discovery. Here we find disporting in ghoulish glee the sexual neuropath and those who, under the banner of reform, devote themselves to destructive criticism, forgetting that from reform two paths lead, one by way of radicalism and riot to ruin, and the other by way of self control and sanity to safety.

Eugenics broadly has to do with all measures that make for the improvement of conditions affecting the life of human beings. Race culture, the application of the laws of sanitation to the housing of people, clean streets, destruction of disease-carrying insects, suppression of dust nuisances, the supply of pure water, clean milk and wholesome food, the protection of workers from the effects of dangerous callings, the securing proper hours of labor for children and women, the limitation of preventable diseases, notification, quarantine and segregation.

It seems difficult in our country to create a proper idea of the value of human life. To one, whose early work in public sanitation began before we had a State Board of Health or any local boards that had any actual authority, or disposition to use the little that they had, the development of a public sentiment in favor of proper sanitary laws and their judicious enforcement has been painfully deliberate. Fifteen years ago the first fine was imposed in a New York court for spitting on the sidewalk, and it has taken until the present time for the authorities and the police to realize that the anti-spitting ordinances in our cities are really meant to be enforced. It took nearly a generation to make surgeons clean, it took even longer to make obstetricians and dentists appreciate their responsibility in the practice of their art. How much longer then will it take to make untrained legislators and municipal administrators come to a realization of the importance of absolute faithfulness to the details of their work, and how much longer to convince the average citizen of his responsibility to his neighbor in the matter of restricting the spread of disease, and of so conducting his life that every one else shall be able to keep well, and that the next generation may have its right to a healthy start in life and a healthy environment not curtailed by an act of his. When we have created such a public opinion then woman, instead of asking for suffrage, may demand successfully that before she gives herself in marriage she shall be certainly assured that she will not be exposed to infection, and that her children shall be born without the handicap of inherited disease.

Using the term in a narrower sense, Professor Barker says "Eugenics has for its object the prevention of the birth of the unfit and undesirable, and the improvement of the race by furthering the productivity of the fit and desirable by early marriages and by healthful rearing of children."

It goes without saying that every one is willing to consider himself "well born," more than that, is desirous of being considered so by others, and most of us have deep down in our hearts a feeling that we have had handed down to us from past generations something particularly and peculiarly fine which marks us as of "the family" and which makes for the development of the welfare of the human race; and this is true; one's descent is from so many widely separated sources that there cannot fail to be present some fragment of the germ plasm of some great and beneficient soul which, if properly nurtured and transmitted under favorable conditions to the next generation, will blossom out in coming time into full flower for the benefit of mankind, and which possesses the potentiality of infinite development.

The Jewish maiden of the house of Judah held within her heart the ever present thought that from her body might be born the Messiah, the hope and glory of her tribe.

This being so, how important for us as physicians to consider well those problems for the benefit of the race, which have to do with the transmission of those qualities of mind and body that offer the greatest possibilities for improvement. The past is beyond us; one cannot by taking thought add to one's stature, we read in holy writ; one cannot by taking thought remove the strain produced by unhappy mixtures in the past or caused by accidents of environment, starvation mental or physical, poisons, syphilitic or alcoholic; but one can study the tendencies of the present generation, and by proper cultivation improve and develop the virtuous and diminish the vicious; and by judicious mating strengthen the tendencies toward vigor and sanity and weaken those toward disease and crime.

That genial medical philosopher, Sir Thomas Browne, has said, "Bless not thyself that thou wast born in Athens, but among the multiplied acknowledgements, lift one hand up to heaven that thou wert born of honest parents, that thy modesty, humility and veracity lay in the same egg and came into the world with thee."

The gentle Autocrat of the Breakfast Table enumerated the generations that are necessary to develop a gentleman, and according to the Poet Herne, "A man should be very careful in the selection of his parents." This care evidently must be exercised very early in the history of the race, because it has been calculated that in the tenth generation a man may have, theoretically, 1,024 tenth great-grandparents.

It is well for us to study briefly the phenomena of inheritance so far as it is known. The mystery of the transmission of ancestral traits and peculiarities of form and character is one which, involving as it does the transmission of the unknowable vital spark, will ever present unsolvable problems. However, we have available a great mass of facts and some very important laws or principles which have been deduced from the study of these observations.

It is not within the scope of this paper to consider the discussion that has been interesting biologists since the publication of Darwin's researches concerning the possible inheritance of acquired characteristics. We have learned, however, certain facts from the studies of the Abbott Gregor Mendel that give us a broad foundation for certain illuminating generalizations, and which are at present accepted by all biologists as true. These studies were made in the cloister garden at Brunn, where, among his plants, with painstaking patience, he collected a great array of facts regarding the phenomena of breeding true, of variations, and of reversions of type to the original ancestors. Based upon these observations he formulated the following three fundamental principles now universally called the Mendelean rules:

First. The principle of independent unit characters.
Second. The principle of the determiners of the germ plasm.
Third. The principle of the segregation of determiners.

First. All qualities or characteristics of organisms are distinct units that are inherited indefinitely; each individual is a mosaic of characteristics from many ancestors. Many of these characteristics will be present potentially even if there are no evidences of their presence, appearing again and again at intervals in succeeding generations. These characteristic units are inherited from two sources, the paternal and the maternal germ plasm, and any given individual may have a double portion from his parents, or a plus unit from one and a minus unit from the other.

Second. The principle of determiners in the germ plasm is that each unit character is represented in the germ by a molecule, or group of molecules called a determiner. These are the only things that are truly inherited. The corolary follows that related individuals have the same characteristics because developed out of the same germ plasm with the same determiners. A child resembles its father because they are made from the same stuff.

Third. The principle of the segregation of determiners in the germ states that characteristics do not blend. When a determiner of a characteristic is absent from the germ plasm of both parents, as proved by its absence from their bodies, it will be absent from their offspring. When the determiner of a characteristic is absent from the germ plasm of *one* parent, then the progeny of the offspring, that is the next generation, will show the evidences of this absence, part of the children having the characteristic, and part not having it.

Another interesting observation is that we may divide the cells of the body broadly into two kinds, the ordinary differentiated body cells and the cells of the germ plasm, the latter being the part that has to do with the development of the next generation. As one authority has said:

"It seems accurate to say that the reproductive cells which have the potentiality of becoming offspring never arise from differentiated body cells, whether they are recognizable as such, late or early, the germ cells are simply those cells which retain in all its integrity the complex definite and stable organization of the fertilized ovum from which the whole organism develops. They have the power of reproducing creatures, more or less like the parents just because they are continuous through an unspecialized cell lineage with the fertilized ovum from which the parental body arose. All the somatic cells are, of course, likewise the progeny of the fertilized ovum, but in their lineage they are differentiations and specializations. We imagine that in them the numerous potentialities in the fertilized ovum are distributed and allowed to express themselves. In the germ lineage they are kept concentrated and latent. In any case the germ cells in the reproductive organs are not actively functioning elements of the body; they are in a quite peculiar way apart from the general soma."

The new individual is produced by the unions of two cells, these cells are parts of the parental germ plasms, and he hands on, to form the next generation, the same kind of germ plasm that he has received from the last.

And so the soma, the body, dies while the germ passes on, carrying to the next generation part of the past, taking something from each parent cell, living a sort of immortal life if you will, being poisoned by alcohol or opium, or sepsis, or syphilis in one generation, being deformed by lack of proper pabulum in another, stunted by inadequate nurture in another, hampered by vicissitudes of environment in another, stimulated to progressive variation by happy combination with strong advancing strains, held back or stimulated to vicious variations by mixtures with degenerating stocks. Ever true to type, in one generation there will be introduced an influence that will strengthen a tendency or a susceptibility to the infection of special diseases such as phthisis or gout; in another the inheritance of resistance to such infections may be increased by fortunate mixture of strains to a point where the germ will carry with other potentialities, that of immunity to infection. Properly directed and protected by careful mating, it is reasonable to hope that it will be possible to develop by art the same immunity that has been developed by nature in certain races; as, for example, the lessened susceptibility to scarlet fever among the Japanese and to yellow fever among the Africans.

Professor J. A. Thompson has summed up the state of our knowledge as to the phenomena of heredity in the following words:

"We know that the germ-cells, and their nuclei more particularly, form the physical basis of inheritance; that there is a genetic continuity between the fertilized egg-cells which give rise to their offspring and those of their offspring; that fertilization implies an intimate and orderly union of two individualities, condensed and integrated for the time being in the ovum and spermatozoon; that the sperm acts as a liberating stimulis on the ovum as well as being the bearer of the paternal half of the inheritance and of a peculiar little body (centrosome), that plays an important part in the subsequent division of the fertilized egg-cell; that the mode of all development is by division of nuclei and the integration of the living matter into unit areas or cells, each presided over by a nucleus; that differentiation comes about very gradually, the obviously complex slowly arising out of the apparently simple; that paternal and maternal characteristics are distributed in exact equality by the nuclear or cellular divisions, and that the paternal and maternal contributions usually form the warp and woof of the web which we call the organism, and persist in the germ-cells thereof, though the expression or realization of the bi-parental heritage varies greatly in each individual case; that the parental heritages include ancestral contributions which may be expressed in development or may lie latent; that normal development implies an appropriate environment, and that, during the development there are subtle interactions between the growing organism and this environment and between the different constituents of the growing organism; that the development is in certain respects like the building up of a mosaic out of many independently heritable and various parts, and that it is in other aspects the expression of an integrated unity with subtle correlations between the parts, and with remarkable regulative processes working toward an unconsciously predetermined end; that in a general way the individual development of organs progresses from stage to stage in a manner which suggests a recapitulation of the steps in racial evolution; that many items in the inheritance, presumed to be present because of their reexpression in subsequent generations may lie latent and find no realization in the individual development; that minute peculiarities of an ancestor may be handed on from generation to generation, although other peculiarities of that ancestor find no expression; that the offspring of two parents differing in regard to some well-defined character may all resemble one parent as regards that character; that the inbred offspring of these hybrids may have offspring divisible in two groups, the one group resembling the one ancestor and the other group the other ancestor; that in other cases the expressed inheritance seems as if it were a mosaic of ancestral contributions from parents, grandparents, great-grandparents in the diminishing geometrical ratio according to the remoteness of the ancestors."

Professor Barker describes the "individual as composed of what are called presences and absences of all possible ingredients" or determiners. The effect of these "presences and absences" has long been of interest to the physician. Watson quotes an aphorism of Boerhaave to the effect that tendency to a disease may skip a generation, and Watson himself details the lineage of a deaf mute whose parents and grandparents were normal but whose great-grandfather, great-uncle and two aunts were deaf mutes.

Dr. Pulsford has allowed me to use as an illustration the history of a certain unusual disease of the nervous system, pseudo-muscular hypertrophy, a disease characterized by muscular dystrophies and paralysis, that he has been found appearing occasionally among the descendentsof a certain Hannah Mulford, who had the disease, and who was born in 1778 of healthy parents. She had ten brothers and sisters who were healthy, but among the fifty-two children of these healthy people there were four cases of this disease which would indicate that the disease was present in the family before Hannah's birth. Hannah herself had thirteen children and three of these had the disease, she also had twenty-three grandchildren, two of whom had the disease, and one or two great-grandchildren had the same disease. In only one instance do we find it appearing in each generation in a direct line. Hannah's son Ashbel, born 1806, and his son Elias, born 1837, and his grandson Joseph, born 1874, all were victims. Hannah's son John had nine children and twenty-three grandchildren who were healthy with the possible exception of one grandchild. Stephen, another son of Hannah's had eight healthy children and twenty-five healthy grandchildren.

Among the Italian families in Orange is one that presents an interesting study in hereditary disease. Unfortunately we have no history of the grandparents; the parents are healthy, hard-working people, with seven children; the first two reached adult life perfectly healthy and continue to be so. Four of the others have all been attacked, on reaching the age of six years, with the symptoms of a degenerative disease that has been called Friedreich's Ataxia and which the neurologists consider to be hereditary; the seventh child is still under six years of age, but is already showing early indications of the approach of the dreaded disease. As the children one after the other approached the fated age they begin to have an ataxic gait, this ataxia soon extends from the legs to the arms, later to the head and tongue and as the lesion of the cord extends upward we have loss of speech and progressive dementia; at ten the child is chair bound, at twelve it is helpless, and at fifteen it is an imbecile.

The practical application of these principles of heredity to race culture among humans presents an entirely different problem from that among animals or plants. But we are compelled to acknowledge the necessity for curbing those diseases that immediately affect propagation and that cause degeneration of the stock. Here is an unlimited field for improvement and a very urgent need for the proper training of those who are to carry on the vital spark to future generations. There being no stock farmer to train, it needs must be that we shall train the stock themselves.

It is evident that the habit of blindly going into the propagation of the species without knowledge of the hereditary tendencies or the personal blemishes, the physical or moral deformities of the mating pair, which is the custom today, will have to be changed completely. To accomplish these changes the following points must be considered:

First. The sterilization of the unfit.

Second. Certificates of health for those about to marry.

Third. Education in sex hygiene.

Fourth. Mating for the improvement of the race.

Fifth. The value of and necessity for removing the ban of professional secrecy regarding social diseases.

First. Already the State has taken up the sterilization of the unfit within a very limited class. This is an important beginning and time will undoubtedly see this class enlarged to include all degenerates and habitual criminals. Here we meet at once the difficult task of choosing the judges. In a world where it is impossible to have any two experts agree as to whether an individual is insane or not, it would be a difficult task to pick the proper subjects for such treatment, and sterilization is an asylum which has no doors swinging outward.

Second. The problem of certificates of health for those about to marry is a much more serious affair than appears upon the surface. They must be absolutely true to be of any value. It is not difficult to determine facts as to the organs of circulation and respiration; to a less degree this is true as to the digestive organs, but when we come to the reproductive organs the difficulty is very great. Every insurance examiner knows that this is so, every diagnostician knows also the difficulty of arriving at the truth even with the help of the patient. We also know that unless the giving of such certificates is to be surrounded by the greatest safeguards, in the hands of the ignorant, of the careless or of the venal examiner they immediately lose their value. Who is to guard us from such?

A public bureau that will be brutally matter-of-fact, that can afford to give these certificates to all comers without favor, and at a low price including physical, bacteriological and chemical examinations, even a Wassermann; such appears to be the only way to secure a certificate exact enough to be of any value at all. Is it probable that the flower of our land would submit themselves to such an experience? The celebrated advice of Punch to those contemplating matrimony "don't" would be acted upon even more than it is today, and yet women have a right to this knowledge.

Third. Education in sex hygiene. The modern movement for education in sex hygiene of school children in the public schools is one that should receive much more thoughtful consideration than is frequently given to it. To my mind there is no question that such teaching should not be given except by properly trained minds, not necessarily medically or religously trained, but by those who have had special training in child psychology. We must remember a few facts:

(a) That full knowledge as to consequences does not necessarily restrain from the danger of contracting social diseases. To prove this ask any professor of genito-urinary diseases as to their prevalence among medical students.

(b) Knowledge of barn yard biology does not give the youth of our agricultural districts pure ideas about the propagation of the species. Will the study of school room biology accomplish any more?

(c) Sex knowledge is as much a part of animal nature as is hunger or thirst knowledge. It is an instinct and does not have to be taught.

(d) Untrained sex knowledge has no master but opportunity. Our daughters should be taught in sexual hygiene the same moral truths that we teach in other relations of life. Self-control and temperance, and the fact that not only does their own future happiness depend upon the perfect health of themselves and of their mates but also that their children's health and happiness will be determined by the same factors. Moreover, they should have the right to know that a given marriage shall be free from the danger of contracting disease, and that no woman should ever marry a man to reform him.

Fourth. Mating for the improvement of the race would seem the simplest of problems. There seems no reason why the joining of strong advancing strains even if quite closely consanguineous should not be for the advance of the race at large, but we must not forget that throughout nature we have the phenomena of the production of "Sports" as it would be called in plant culture, or "Geniuses," as we call it in human culture, and that these sports and geniuses are not the product of the highest development, are not the progeny of the most perfect specimens of their kind, but that they are frequently of lowly parentage and have sprung from defective and often neuropathic stocks.

Fifth. The value of and necessity for removing the ban of professional secrecy regarding social diseases. There is no doubt that in a large percentage of cases such concealment works for harm to many innocent individuals who have a right to full knowledge. The first effect of such action would be the driving of such patients from the care of honorable and truthful physicians to the care of liars and quacks and would expose the victims to the dangers of malpractice and blackmail. There seems to be no other way today than that the physician should have legal protection if he sees fit to violate professional secrecy in those instances where a plainly spoken word of warning as to the danger to others is unheeded.

Above all, it is necessary for us to make haste slowly in these matters, hoping for the time when by proper training we may succeed in developing a public opinion that will insist that future generations shall be safeguarded from the curse of degenerative disease, and that the propagation of the race shall not be a menace to the health or life of women.

It is the duty of physicians to take up these problems, to use their influence in training the thoughtless and ignorant in those habits of life that shall be conductive to the highest conditions of health, and to impress upon their patients the responsibility that is involved in assuming the role of ancestors.

SOCIETY TRANSACTIONS

STATE MEDICAL SOCIETY OF NEW JERSEY

Symposium on Child Life

The Relation of the Physician to the Philanthropic and Sociologic Work of the Community in Child Life, by Henry L. Coit, Newark, New Jersey.

The Relation of Defective Children to Public Schools, by Supt. E. R. Johnstone, Vineland, N. J.

The Conservation of Child Life, by George W. Fitch, M. D., Daretown, New Jersey.

Skin Affections of Childhood, by H. F. J. Walhauser, M. D., Newark› New Jersey.

The State's Responsibility for its School Children. William G. Schauffler, Lakewood.-(published in this issue)

The Relation of the Municipality to the Child. Andrew F. McBried, Paterson.

The Doctor and Eugenics, by T. W. Harvey, New Jersey.

The Symposium was opened by Dr. Henry L. Coit of Newark, N. J.

The Relation of the Physician to the Philanthropic and Sociologic Work of the Community in Child Life. Published in full in this issue.

Ignorance, poverty, disease, degeneracy, crime and mortality are interdependent, and in some degree progressive in descent. The physician's relation to poverty and crime is fundamental; so that he becomes the logical leader and director in most of the sociologic work in the community. The philanthropic and sociological problem in our country largely grows out of the immigration of poor and illiterate foreigners. Physicians have a duty to perform towards the children of these foreigners—both those brought over and those born here in the matter of infant hygiene and an improvement in the sanitary conditions of the poor. If they do not take a hand in the solution of this problem, the opportunity will slip from their grasp. All social uplift work is better done under the guidance of medical men, who, by experience and education, are better fitted for constructive and philanthropic administration. Physicians have here a fine field of activity as humanitarians, as protectors of society against the evils of commercial greed, and as teachers of philanthropic and sociologic principles.

Dr. Alexander Marcy, Jr., Riverton:

There is no one person in a community that figures so largely in every phase of philanthropic and sociologic work as does the physician, and no one individual who gives more of his time, his energy, or his substance, than he does. He has not always made the best use of his opportunities because of a tradition that he should not permit himself to appear too prominently before the public, lest he be accused of trying to advertise himself. To my mind this is all wrong. The members of our profession should be leaders of thought and action; never followers. How can the change be brought about? This can be done largely, if not entirely, by the kind of men and women who are allowed to enter the ranks of the profession. Given then the best sort of material, with a reasonable knowledge of the fundamentals of medicine and we will have entering the profession such men and women as will take their proper place in the philanthropic and sociologic life of the community.

Dr. Francis H. Todd, Paterson:

The laws brought out by the State Tenement House Commission will, in time, do a great deal for the younger children in preventing mortality. The Compulsory Education Law, which compels children to go to school until the age of sixteen, not only develops the child mentally and teaches him how to live and what to do, but also prevents his being forced into factories and other places of work before he has attained the age at which his physical development is sufficient to allow him to work without harm. So if we look back and see the precautions that the State has taken as a guardian over young children regarding their physical welfare, and consider that this is only one part of the work,—that the school and educational part is equally important,—we shall realize that the State of New Jersey is indeed attending to her responsibilities in this respect.

Dr. J. Finley Bell, Englewood:

The saving of time for the pursuit of other studies in the school life of a child if the arbitrary weights and measures were abolished and the metric system adopted, is considerable. In France and Germany, where the metric system is the only one taught, the pupils take up the study of algebra one year earlier than in England and America, where their minds are befogged by the many tables of weights and measures in use. At least eight months would be saved from the entire school life of the child by the universal adoption of the metric system. The entire school life of a child is twelve years, including high school. The cost in New Jersey is $51.03 per annum, or $612.36 expended on the education of each pupil. If the metric system were adopted, to the exclusion of all other systems of weights and measures, thereby saving eight months of school time, there would be a saving of $34.02 for each pupil graduate.

Educational Hygiene and Prophylaxis.—Dr. George J. Holmes, Newark: Medical inspection of public-school pupils and their environment is passing through an evolutionary stage. Eight or ten years ago, the duties of medical inspectors consisted simply in inspecting the children to discover contagious diseases. Today, he has many other duties; and the present system has a number of faults and weaknesses. In order to correct these, I would suggest that trained nurses should be employed to carry on the major part of the work which now devolves upon the medical inspector. They should, however, be under the charge of a trained physician. Any doctor accepting the position of medical inspector should expect to devote the entire day to school work. The lack of co-operation with the medical inspectors, shown by some of the medical profession, has proved a serious drawback to the movement to obtain opportunity for the education of the coming generations in regard to matters of personal hygiene.

The Object and intent of Medical Inspection of School Children.—Dr. Joseph McDonald, Jr., East Orange: The following are the basic reasons for such inspection:—The school is the only Government department that directly assumes control over children's lives. At least nine out of every ten American children are subject to this control, and such control is maintained (roughly speaking) during the critical years of from seven to fourteen. The objects that are the intent of the Medical Inspection Law can be accomplished, first, by the appointment of a State Medical School Inspector, as a member of the State Board of Education; secondly, by the preparation of uniform blanks by the State Board, covering individual record cards for yearly examination, recommendation cards for treatment and exclusion, and cards for infectious or communicable diseases; and, thirdly, by having duplicate reports sent by the School Inspectors to the School Board that they are serving and to the State Board at Trenton.

Discussion on Dr. Holmes' and Dr. MacDonald's papers

Dr. Edward A. Ayers, Branchville:

I have not much to say in the matter of time, but a good deal in quality. Pardon my apparent egotism. This is the place to discuss the issues involved in medical inspection. We get here a great variety of views. Everyone in this room, I think, must arrive at the conclusion that one thing is urgently needed, and that is a crystallization, after careful work and study outside this meeting, of the whole subject of uniform State Laws, for adjustment, for co-operation, and for standardization. We have in most of our public medical work a purely experimental attitude. We do not procure legislation. We are like moles in the ground. We know what we want; but when it comes to public statutory work, we are rather at sea. We have laws passed, which afterwards have to be changed. There was one permitting boards of education to employ medical inspectors. Almost none of the boards did it. Then it was made compulsory. They do it now, but on the most parsimonious system possible. They get contract bids. I was asked to bid, and refused. Several of us are going to present this afternoon, at the business meeting, a resolution that calls for the appointment of a committee, carefully selected, which shall take up this question and work it out. We cannot do it here. It must be done in the study room, in order to put it in shape. We need a State Medical Superintendent of Inspectors, to begin with, who shall see that the best results are being obtained throughout the whole State. He has a great work to do. He must be broadly educated. He must get this subject into the best state of standardization, so that we shall not have as many methods as there are inspectors. I hope that the proposition will receive your approval. We want the most efficiency with the least cost. The public does not realize the place that hygienic and preventive measures have in public expenses. As I said at Atlantic City, we are struggling here to exterminate mosquitoes: and we have only one example of successful work in this direction, in the Panama Canal Zone. That is because of the great military efficiency behind the work there. We have not approached that. We must have more money to do it with. The public must be brought to realize that in order to accomplish any of these results with success, the necessary funds must be given.

Dr. Charles A. Rosenwasser, Newark.

I should like to ask Dr. Holmes how we can improve these conditions. Is it not a fact in the city of Newark, the salaries of the medical inspectors have even been reduced, while, at the same time, they have had additional work piled on them? Who is the person to say to the doctors what they shall do and who is to pay them? As for having nurses to do the work of the doctors, that has been tried in New York City, without success. If a doctor gets eighteen or twenty cents to go to a school and sit there an hour or two, how can it be otherwise than that he will grab a case now and then from someone else? I do not do this, because my patients do not go to school. The solution lies in one word only. You must pay a man a living wage, and he must devote his whole time to the work; and a man should not be allowed to send school children to his especial friends.

Dr. Gordon K. Dickinson, Jersey City:

I think that Dr. Rosenwasser has hit the nail on the head. Two things withhold our Boards of Health from appointing an inspector. One is the cost; and the other, the people who appoint the Board. On one side we have politics; and on the other side, we have lack of money. We have in New Jersey, as it were, a fine automobile; but all its tires are punctured, we have no gas, and no money to buy gasoline with.

Dr. D. C. English:

I want to call the attention of every medical man to one or two thoughts—Dr. Osler once remarked, "Let us have good men to do the work, and let the work be well done," Another thought is contained in the remark in the paper, that, outside of the cities, medical inspection is a farce. It is; and I want to endorse Dr. Ayers's remarks about a head for this entire work. I do not want to take your time; but I would ask you to read the editorial in the June issue, on Preventive Medicine, in which I take the position that the Board of Education should have the best medical man procurable on it, and that he should have entire charge of medical inspection, hygiene and every other medical subject referring to the management of our public schools.

Dr. Thomas A. Clay, Paterson:

I am surprised to hear one of the doctors intimate that medical inpectors steal patients. I happen to be a medical inspector, and am associated with six other medical inspectors; and they have the happy faculty of referring every case to the family physician. They do not treat the children or advise about the treatment. I think that the school nurse is a necessity. In the city where I am, the teachers of a public school paid the salary of the school nurse for a year, and proved that the inspection was improved thereby one hundred per cent. I believe that we should have an association of the medical inspectors of the State, so as to get together and study the subject; also to have laws passed whereby remedial defects in children may be corrected.

Dr. William G. Schauffler, Lakewood:

I want to correct a misstatement. The medical school inspectors in this State are appointed by the School Board of the district in which they work. Their compensation is adjusted by these school boards, in accordance with the wishes of the voters; and they are paid badly, because the voters do not realize the importance of getting good men to do the work. Country inspectors are, however, better than Dr. English thinks. Many rural inspectors do the work under hard conditions, and are doing it well.

Dr. Carl E. Sutphen, Newark:

I listened with especial interest to Dr. Holmes's paper, but I rather wish to take issue with him is regard to one point. He says that our hospitals and clinics are held at inconvenient times for these school children. I think that one who has had experience in our city clinics will feel that we have sufficient clinics to-day, to take care of our poor people. In fact, they are very much abused to-day; and I would enter a severe protest against establishing a new clinic run by medical inspectors of schools, to take care of school children. The amount of time that the child loses in going to a public clinic is a mere trifle as compared with the fact of establishing a new set of clinics, when we are already over-run with them.

Dr. E. S. Sherman, Newark:

In response to Dr. Rosenwasser's request to know who it was that outlined the work in Newark, I will say that I have outlined the work there. Of necessity, in any department, in any character of work, the work will grow, whether the salary grows or not; and you have to go on and on, and become more and more efficient. As to the salary's being cut down, it was cut down, and then put back again. It would not make any difference what you pay any professional man to take the position of medical inspector, he cannot hold it forever. There is a limit to his stewardship. He will hold it until his private work becames so great that he has to choose between it and the school work; and the boards of education can never pay a sum that will warrant medical inspectors in ignoring private practice absolutely. Unless they adopt the proposition of having the nurses do the general medical inspection, and have a few doctors to supervise the work of the nurses, the doctors will be unable to attend to this work and their private practice too. So far as the character of the physicians goes (I can speak for Newark), we have the best of the younger men—doing excellent work for a mere pittance; and I doubt very much whether, if they were paid one thousand dollars, we could get better work than we have to-day. As to the nurses, I think that it would be a bad department without school nurses. In regard to special clinics for school children, that is not my idea; though they are in operation in England, with great success.

The Importance of the Care of the Eye, Ear, Nose and Throat in School Children. Joseph Tomlinson, Bridgeton.—The important role played by the eye and the nasopharynx in producing not only local, but also remote symptoms has long been recognized by specialists. The general medical profession, however, has been rather slow in accepting this teaching. The care of the eye, ear, nose and throat of school children assumes a special importance, when it is considered that diseases and defects of these organs render the child less capable of performing the tasks imposed upon him. If diseased conditions in these organs are not eradicated during school life, they will, in many instances. have done irreparable injury by the time adult life is reached. Moreover, the very environment of school life is an etiological factor in diseases of the eye and nasopharynx. Anomalies of the eye, ear, nose and throat also have a distinct bearing on the stigmata of degeneracy. The conditions and environment of school life afford an opportunity for a systematic investigation of these conditions, and should furnish an opportunity for their rational treatment. The untoward results arising from diseased conditions of these organs are more far-reaching than those from many an epidemic of smallpox, measles or scarlet fever.

Dr. Walter B. Johnson, Paterson:

When I was asked to open the discussion on this paper, I said, "I have been over this thing a long while ago." I believe that I have been a prognosticator, and know that I will be a sort of reminiscence.

It was twenty-five or thirty years ago since I began to consider the subject on a committee with Dr. Kipp. After Dr. Kipp got tired of it, I wrote a number of papers, which were presented to the society. In them I made a lot of recommendations to the society, the Legislature, and the Board of Education. The recommendations were very similar to those that you are making as entirely new, and I will just cull from some of these previous articles. For instance, here it says: "Your committee have not until recently communicated with the State Board of Education" (this is a committee on Medical Inspection of Schools appointed in 1898) "pursuant to the resolution of the society at its last meeting, as it was considered undesirable to in any way hamper the various educational boards prior to the appointment of inspectors. A communication addressed to the Chairman of the State Board of Education was recently sent, also copies of the transactions of the Medical Society of New Jersey for the years 1899-1900. Your committee recommended that a circular of information be prepared under the direction of the State Board of Education, for distribution to the local educational boards, which should definitely set forth the law and define the duties of medical inspectors of schools, in order that a uniform method of the administration of the law may be adopted in every community in which inspectors are or may be appointed." Now that is what this society recommended through its committee to the Board of Education ten or twelve years ago; and there was a recommendation adopted by the State Board of Education, and leaflets were sent out; but these leaflets did not succeed in making inspection of the schools in this State uniform. You have to keep at it. It is not done in a uniform manner. We expected that they would not only send a circular letter of information, but would define a method by which statistical data and records should be kept. They had then a card, which had been suggested by Dr. Henry Mitchell; but that has been changed, I believe.

What we lack is uniformity of action. What we want is to have the medical inspectors of each municipality or community carry on their work in exactly the same manner. What we want is to have them reach out and do better work, and not to shift the work to the shoulders of visiting or other classes of nurses. That is a mistake. The inspection of a child as to its physical condition is the business of a doctor; it is not the business of a nurse, and the corner-stone principle of nursing is that the nurse shall carry out the orders of the doctor. The minute you set her out to take the initiative, that minute you are getting on a wrong tack.

I do not make these remarks with any feeling of disrespect for the profession of the trained nurse. I have the very highest regard for it. She has her functions and duties; but they do not include the practice of medicine. We do not want nurses to treat any case of disease, no matter how easy it seems to be; because the question of how bad it is is a matter of judgment, and that judgment should be that of one qualified to give it. I am not raising the question of the qualifications of our medical school inspectors.

It was moved and seconded that Dr. Johnstone be given five minutes more to finish his discussion. Dr. George W. Fitch, of Daretown, said that his paper came last on the program for the afternoon, and that he would give the time that would be consumed in reading this paper for discussion, which he thought would be more profitable, and have the paper published in the Journal. The motion was carried, and Dr. Johnstone resumed his discussion.

I really feel, under the circumstances, that I should retire; although I had really only just got started to discuss the paper of our friend, Joe Tomlinson. I got led away by the gentlemen who wanted to do new things. The first thing is to get old things done. The first thing is to find out that all the parts of the machine are right, before you begin to operate it. The whole subject under consideration should be studied and carried through to a finish, so as to devise some method by which the work should be operated. That has not been done by the Board of Education, although it made strenuous efforts to carry it out. I think that the suggestion that a traveling inspector be appointed, made by Dr. Ayers, to go from school to school and examine the inspectors, so as to find out that they are attending to their work and are qualified to attend to it, is a good one. We do not want people appointed who are not qualified. It is not necessary that the man who happens to be high in the public eye at the minute should be selected. There are young men who are just as good. They have enthusiasm and ambition, and are anxious to do the work. The question of salary appears immaterial, but it is not. It is very material. It is important that the public should be educated to the fact that the time has arrived when the physician is worthy of his hire.

Now I understood Dr. Ayers to say that bids were offered for the job of school inspector. One physician bid one hundred dollars; one, one hundred and twenty-five dollars; and one, one hundred and fifty dollars. If the hundred dollar man got it, that does not prove that he is not as well qualified as the others; but it does prove that his sense of the dignity of the profession is fifty dollars lower than that of the one who bid one hundred and fifty dollars. What we need is to elevate the public opinion of the profession; and we cannot do it by doing for nothing work that should be paid for. The municipalities of this State are not neglecting their poor. There is not one of us who is not willing to work, any day, and any amount of time a day, for the care and attention of the people who need and deserve our care. The public school children only in small number need our gratuitous care; and, as far as the question of opening a clinic in the schools is concerned, I think that it is ridiculous. As for the question of persons engaged as school inspectors, or the head of them, being engaged in the treatment of students in the schools in which they are examiners, I think that a medical inspector is at once a derelict in his duty when he takes on the case of a child in the school, unless he was the family physician of that family before he became a school inspector. I make that one exception. The thing to safeguard is that there shall be an inspector, and not a treater.

Now, gentlemen, in order not to take any more time, I will close with one suggestion. I am very glad to hear that the law has finally been passed for the segregation of the derelicts and defectives; and I will quote again from another of my valuable articles, published some years ago: "It is of vital importance that attention shall be given to every detail in school life work which can result in preventing the moral, mental or physical degeneration of the children of the country. They, in the near future, must carry on the work which has already reached and is constantly attaining a higher state of perfection. Unless the present generation is to nuture a race of mental giants, who will be physically degenerate pigmies, steps must be taken at once to adopt every measure which is scientifically proven to be of advantage in preventing the onset of diseased conditions of any character in the children of our public schools.

Dr. Norton L. Wilson, Elizabeth:

I wish to say a word regarding a subject that Dr. Johnstone has mentioned. He said that the nurse has no business in caring for these children. My experience is that the nurse is just as capable of examining the children's eyes and throats as is the doctor. In my clinic, I see hundreds of cases sent there to have their tonsils removed. When I say to my associates, "What are you going to do?" they reply, "Remove the tonsils." I ask, "what for?" and they say, "Because the patient was sent here to have them removed; and if we do not remove them, the patient will be sent back to us." Now there is a definite reason for performing this operation; and the tonsils should not be removed unless they show this definite reason. The mere fact that they are enlarged does not show that they should be removed. The nurse is as capable of saying that the child should consult a physician as is the doctor, and I consider her a very valuable assistant.

Dr. Linn Emerson, Orange:

I should like to corroborate what Dr. Wilson has said. We have as good inspections in Orange as anywhere in the country. It is done by a woman physician; and she is giving more than half of her time to this work and is earning thirty-five hundred dollars, but not getting more than one thousand. She has nurses under her supervision. The crux of this whole matter is the question of money. There is no medical inspector in the country getting one-quarter of what he should get. The average individual cannot see a dollar, unless it is coming his way. It is like the man who does not advertise. He does not see any material returns from it, and does not think that it does any good. The general public do not see the advances of medical school inspection. They do not realize that the few hundred dollars given for this purpose is saving them thousands of dollars. We must foster education in the community, so that they may understand that they get their money's worth ten times over. There is a feeling, I am sorry to say, among the general public, that this medical inspection is "all damn nonsense, and don't amount to anything at all." This belief is fostered by what Dr. Johnstone has mentioned, the treating of cases by the medical inspector. He should not be a treater of disease. When he begins to pinch the cases and treat them, the public has reason to suspect that he has an ulterior motive, and is recommending procedures that are not necessary. I feel, too, that the time will come when boards of education will employ inspectors who will give their whole time to this work and become specialists in it, just as health officers now are. Then the medical profession cannot be accused of an ulterior motive. It is deplorable that a feeling of animosity has grown up between the inspector and the general practitioner. There is no denying the fact that giving a man a medical degree does not make him an angel. We are all after the money, and we all need it. The temptation is for a man, if he is practicing general medicine, to let the opinion go forth that this child should perhaps come to him for treatment. Some inspectors do openly seek patients in this way, and the remedy is for the inspector to do nothing but inspect.

Dr. Wells P. Eagleton, Newark:

I want to add a word to what Dr. Johnstone has said of the value of the trained nurses. Having lived in Newark before we had medical inspection, and knowing what has been accomplished and how it is progressing in the physical development of the city's school children, I wish to say that we had, years ago, just what Dr. Johnstone said. There were two or three physicians appointed to make these examinations. They were not made; and they never will be, so long as you rely on the physician to do a lot of detail that takes a great deal of time and is unworthy of the value of that time. The Board of Education of Newark appointed six, and the number of examinations was small. It was not until nurses were appointed that the work was properly attended to. These nurses, under the inspector, are finding out the details. The examination of the urine and of the eye and throat can be made as well by the nurse as by the physician. When the time comes that you pay the inspector for his whole time, the system will fail. The chief trouble has been the lack of co-operation of the medical profession at large. They seem not to realize the wonderful work that is going on. In our own Society, in our Council, there are constantly a body of men that have arisen to critizise it; and when the question has been put up to them as to what the fault was, the answer has invariably been: "I lost a patient." So far as I know, there has not been a single instance in which the medical inspector has willingly and consistently attempted to abuse his position, any more than we do in our hospital.

Dr. Charles A. Rosenwasser, Newark:

In every school there is an official called the janitor. When he is through with his work, he has several hours of rest. Why not use the janitor to examine the children?

Dr. E. S. Sherman, Newark:

It seems to me that one very important part of medical inspection has been forgotten. In the first place, we are using a very bad term to describe this work. We should call it medical supervision. The inspecting is the smallest part of it. We have hundreds and thousands of inspections; but with it all, we get no cure. You will have no cures, I do not care how many physicians you have, until you employ the nurses and follow the patients to their homes. How many physicians working part of the time are going to follow the cases home? How many families would permit such interference on the part of the inspectors? What treatment has taken place has been given under permission obtained from the parents. Clinic patients would get free treatment anyway; but when they get it in school, they get it without loss of attendance.

Dr. Henry H. Davis, Camden:

Dr. Sherman has the right idea. I have been Medical Inspector of Schools for a number of years. It can never be a success unless we have the co-operation of the general practitioners of medicine. They must assist us. To complete the success, it needs the nurse to follow up the advice given by the doctor. Without that, it will never be a success.

Skin Affections of Childhood, Henry J. F. Wallhauser, Newark.

Dr. E. D. Newman, Newark. Published in full in this issue.

Dr. Wallhauser has mentioned ichthyosis and the clinical forms of this disease. There is one form that is sometimes seen in keratosis, etc. That, no doubt, he included in the list of the clinical types of ichthyosis in his paper. One that he did not mention (and I suppose he had a reason for this) is urticaria pigmentosa. That occurs in the first six months of childhood, but sometimes later. In Dr. Wallhauser's summing up, I should like him to tell me whether he found a histological reason why we find tineaonsurans only in children. In the youngest case reported, the patient was nineteen years of age. (Oldest?) That is one of the things that are interesting in connection with school life, why the scalp of the child should afford the most suitable soil for the growth of this tinea?

Dr. Wallhauser, closing:

In my paper, I have considered the matter about which Dr. Newman asks. Saborot has defined the various varieties of tinea; and while there is no definite reason why a germ should grow in one place rather than in another, we know that many germs do have preferences. As this subject was considered in the paper, I think that any further remarks concerning it are unnecessary.

Some Differences in the Surgery of Children and Adults.—Ellis W. Hedges, Plainfield. Surgery is one of the many agencies for the betterment of child life. Appendicitis is harder to recognize in children than in adults; and there is need of earlier operation for this disease in them, because of the swollen omentum. There is much danger of infection of the Fallopian tubes in young girls. In hernia there is a tendency to spontaneous cure in young children. Intra-abdominal pressure is the most frequent predisposing cause in the young. It should be treated by stopping coughs, relieving flatulence, and preventing straining at stool or urination. The patient should be kept on his back, with the foot of the bed raised 20 degrees for six weeks. One should operate in only strangulated or irreducible cases, or when the opening is unduly relaxed. Intussusception is more common in children, because of increased reflex irritability of the intestines. The intussusception is of varying types, and causes greater shock to the young than to adults. In operating, one should use every precaution. The differences between the structure of the bone in children and in adults have a considerable influence in producing less tendency to fracture in the young and a quicker repair. Epiphyseal fractures are of the most frequent occurrence, and there is often an inherited tendency to fracture in rachitic children. Tuberculous glands of the neck are more common in children than in adults. The infecting agencies gain entrance through diseased structures in the naso-pharynx.

Discussion opened by

Dr. Gordon K. Dickinson, Jersey City:

The surgery of children, like the surgery of women, is surgery. I cannot speak from the standpoint of a child surgeon, but only from that of surgery in general.

I know of nothing more difficult than to make a diagnosis of acute appendicitis in childhood. For some time back, I have been sorry that Fitch ever wrote his article on appendicitis. It was so well written and so to the point that we have since reading it been forgetting that you cannot have appendicitis with cecitis or cecocolitis. In women, we have a chain of conditions running from the ovary to the gall-bladder and stomach, all of which are apt to be appendicitis. If we make a diagnosis of appendicitis in these conditions, the appendicitis is simply the surgical technical end of a big lesion. If you have a case of cecocolitis in a woman or child, you must remember that the surgical portion of it may occur; and if you want to avoid appendicitis, you must reach the cecoclitis. That makes it difficult, because it is difficult to diagnose colitis. I have seen cecocolitis go on to appendicitis and death, the autopsy proving it to have been due to an inability to differentiate some complications and the regional trouble. The great cause of cecocolitis is stuffing. You eat food too high in proteids; you eat too much food, which the cecum cannot retain. The refuse ferments, and you get cecocolitis. The appendix cannot drain, but the cecum can.

I am glad that Dr. Hedges spoke about operations for hernia in infancy and that he brought up some statistics regarding this point; because statistics gain your attention. I have seen more than one male child become sterilized through an operation for hernia, which might have been avoided. I do not believe it wise for even a careful man to operate on hernia in infancy, because of the danger of destruction of the organs of sex.

As to the tonsils and adenoids, the more I see of tonsilar disease in childhood, the more do I feel that the tonsil is a very important organ to watch. I believe with Dr. Wilson that not every enlarged tonsil should come out; but this organ should be watched as carefully as the female breast or cervix, because patients with infected tonsils so often go on to bacilemia and death. They absorb different germs, and become severely ill, and their health and life are jeopardized. The tonsil that does not functionate properly should be enucleated. A man at Johns Hopkins was lately talking against this procedure; but I think that there should be a commission in lunacy appointed to attend to his case.

As to fractures of bone in children, their muscles being soft, we get good extension and excellent results. There is nothing that gives so happy a picture as fractures in childhood.

Dr. W. H. Lawrence, Jr., Summit:

Dr. Hedges has given a very reasonable explanation for the greater severity of our cases of appendicitis in childhood by bringing out the anatomical picture of a much shorter omentum in proportion in childhood than in adult life. The importance of the early diagnosis of appendicitis in children is shown by the fact that it is not so rare in infants as has been indicated. I have seen several cases in children under six months of age. One was an acute attack of appendicitis, causing an intussusception; and we found that there had been a primary inflammation of the appendix, which had evidently led to the intussusception.

In regard to there being a certain type of the condition in childhood, I wish to say a word. Dr. Hedges says that the average number of cases come on between the ages of fifteen and seventeen. These cases all have a history that he referred to when he spoke of the danger of giving castor oil for stomachache. Many of these patients have had recurrent attacks of epigastric pain, with no diarrhoea and no signs of putrefaction in the intestinal canal, and with or without vomiting. These attacks recur from time to time, particularly after severe exertion; and the pain is usually considered to be an ordinary stomachache. These patients ultimately have a frank attack of appendicitis; and after their appendix is removed, there are no longer these recurrent attacks of acute indigestion. The paper that Dr. Graham has written in regard to the types of appendicitis holds good for the disease in childhood. I do not believe that it is due to a disturbed condition in the large gut so frequently in childhood as in adult life. In the latter, we have a putrefactive condition of the colon, from which the appendix ultimately becomes involved; but in childhood appendicitis is usually due to mechanical interference with the appendix itself. Most of these cases are due to congenital malformation. In a few cases, it happens that I have been able to recognize chronic recurrent appendicitis with epigastric pain. In these cases, removal of the appendix has given relief from the attacks.

In regard to cases of fracture in childhood, Dr. Hedges has mentioned the fact that we get more prompt union of fractures in early childhood than later. One point that we should be careful of is this: although we have apparently early solid union of certain fractures of the shaft, the splints should not be removed too early; as we frequently see angulations form at the seat of fracture some weeks after the splints have been removed in children.

Dr. Sarah R. Mead, Newark:

I should like to relate one case in which there was early interference with the appendix discovered at autopsy, sixteen years afterwards. The child had some swelling in the intestine; but this was sixteen years ago, when operations for appendicitis in childhood were not done. It was supposed then that childhood favored recovery enteric fever and abscess. The child died of what appeared to be typhoid, and the case came to autopsy, when it was found that there had been a diseased condition of the appendix, which was probably the cause of an infection that simulated typhoid. There were abscesses, first of the right lobe, and then of the left.

Dr. F. D. Gray, Jersey City:

There is one statement in this very excellent paper that, taken at its face value, ought not to go unchallenged. That is that strangulated henia in children should not be operated upon, unless they can be reduced. I feel that the same conditions and the same methods of treatment should apply, whether in children or in adults; and I believe that if there is one condition that is more deplorable than another at the present time, it is that of intestinal obstruction, which a strangulated hernia is. It is my intense feeling on this point that all cases of intestinal obstruction should receive prompt treatment. You heard the statement made yesterday afternoon that at Johns Hopkins the mortality from this ranges from forty to one hundred per cent. The mortality would not exceed ten to twenty per cent., if the condition were recognized early and promptly dealt with surgically. There comes in the question of diagnosis, in regard to which a note of warning should be sounded. We see a thoracic condition, particularly in children, that will simulate appendicitis—appendicular pneumonia, or appendicular pleurisy. We should be on our guard, when children have symptoms of acute appendicitis, to be sure that they have not a pneumonia or a pleurisy. It is a good routine treatment to investigate the pulmonary condition in every case.

Dr. John C. McCoy, Paterson:

I agree with everything that Dr. Gray has said with reference to the pulmonic condition. I have seen a large number of cases of appendicitis in children, in which, by waiting, the diagnosis has been cleared up. I recall one case in particular, in which the child had had adenoids removed. It had severe coughing immediately afterwards, and was quite sick for a day or two. It became convalescent, and then acute abdominal symptoms came on, with everything indicative of appendicitis. The abdomen cleared up later, and the case eventuated in one of pulmonic abscess from the inhalation of foreign material. Nearly all cases of appendicitis in children start from an inflammatory condition of the cecum. If you have the specimen examined toward the cecal end, you find the inflammation quite extensive in that area. In a series of eight hundred cases of appendicitis, I have never had occasion to operate on a child under six months of age.

The Administration of Anesthetics to Children.—George E. Tuers, Paterson. There are practically but two anesthetics to be considered, chloroform and ether; and we should administer the least dangersous drug in the least dangerous way. Chloroform is the pleasanter of the two, but the more dangerous. It is, however, indicated in lung, kidney and brain surgery; although I believe that ether may be used exclusively in all operations on children, without increasing the death-rate. The drop method with a simple inhaler should be employed, and the operation should preferably be performed in the early morning. Care should be taken to reassure the child and prevent its being frightened. One should begin by giving one drop to three respirations. As the feeling of fear or anxiety advances, gradually increase; and continue at the rate of one drop to two inspirations until complete narcosis is accomplished. Then return to the border line. There is no definite proportion between anesthetic and air, but be careful to keep the patient completely narcotized during the entire operation. The pupillary reflex is the most accurate index of the condition of the patient. If pneumonia follows an operation, it may as well be attributable to exposure as to the effects of the anesthetic.

Discussion opened by

Dr. F. W. Pinneo, Newark:

The subject of Dr. Tuers bristles with so many interesting points that are fruitful for discussion that I shall only allude to two of them. First, I should like to emphasize a point in regard to the ease of the action of anesthetics in childhood, of which Dr. Tuers has spoken. Because a child succumbs readily to a narcotic why should he be refused an induction that is not fraught with terror in after life. A child may be relieved in many surgical ways; and why should he be in terror of instruments and doctors and anesthesia, when it can be avoided? As to other drugs children are very susceptible to narcotics and anesthetics which have a leading place alongside of morphine. Even if you give codeine or any other narcotic to a child you must be careful to adjust the dose to the indications.

The past year has been most frutful in the realm of anesthesia. The report of the Committee on Anesthesia of the American Medical Association, presented just a week ago at Atlantic City, opens with the following statement: "Recent developments in this field afford ground for the hope that we are today at the beginning of an epoch of progress in anesthesia unequalled since its original discovery and introduction."

Later on, the report says: "We are of the opinion that respiratory failure may be in certain cases the indirect result of an unskillful timidity which, by prolonging the stage of excitement, induces a capnia; rather than the direct result of overboldness in the administration of ether at the moment of failure. Essentially the same danger is involved in allowing the intensity to vary during an operation. It is not the anesthetist who at all times maintains uniformly deep anesthesia whose patient stops breathing. This accident comes particularly to those who administer so irregularly that the patient at times comes nearly out of anesthesia and again is plunged into profound narcosis. In the production of a high fatality, the intervals of incomplete anesthesia play a part as great as, or even greater than the period of profound narcosis which immediately proceeds respiratory (or cardiac) failure. Anesthesia is good in proportion as it is uniform."

One of the activities of the past year has been the clinical observation of Crile on the absence of anoci-associations—painful associations with the operation. His observations were made on cases of goitre largely; but it is important to remember, when operating on children, these means of producing an absence of painful associations.

The first point in the paper of Dr. Tuers that I wished to emphasize is induction. We can divide this into four heads. One is easy, safe induction, which is very important. This is notably so in children, not only because the drugs used are potent for harm, or can be; but also because the children are so susceptible to nervous influences as to be induced either easily or with difficulty.

Ether is one of the best means we have of inducing anesthesia. Chloroform has been condemned by Mann, and in this report it is condemned as of routine selection; but later there is a paragraph that shows that it is valuable under certain conditions and in certain cases, and emphasizes the value of nicety in selecting the anesthetic.

One of the recent advances has been the laboratory experiments of Henderson, showing the importance of acapnia and of carbon dioxide in the blood, as the best known stimulant to respiration; and how we have, with our methods, deprived the patients of this, many of the deaths being due to this fact. The loss of life is usually due to over excitation under induction, in which the stimulation to rapid breathing has produced death by over oxygenation of the lungs. I will not stop to argue how it is that the system lacks CO_2 when there is plenty of O_2 in the system.

The Committee recommend the open method; but in the use of this method we notice how prone every anesthetist is to add a little. That is because the half open method is so valuable, particularly that used by Gatch, of Baltimore.

In regard to evenness in the administration of the anesthetic, which this report emphasizes, its importance is well demonstrated by the fact that a subject who has been under chloroform cannot be again anesthetized within a few hours without great risk. The same danger is caused by allowing the depth of the anesthesia to vary during an operation. The intervals of incomplete anesthesia play as great a part as those of profound narcosis, and even greater.

Dr. Samuel A. Cosgrove, Jersey City:

The greater toxicity of chloroform as compared to ether is abundantly confirmed by experimental and clinical evidence. The sudden onset of symptoms has probably been observed by us all. Such a crisis is especially dangerous in the hands of the inexperienced. Whether this toxicity is greatly lessened by the plan of warming the vapor, or not, must remain for a wider use of this method to determine. In my own experience with it, I have never encountered so far, any unpleasant reaction. Another most important phase of the action of chloroform is the delayed damage to various viscera. That the nitrous oxide-oxygen combination is not suitable to the needs of the general practitioner is proven. Many children are found in whom the fear of the anesthetic amounts to absolute terror. Deliberation in the induction under such circumstances is a cruel and needless prolongation of their suffering. The indicator of the extent of the reaction are the signs of the degree of narcosis. A priori, therefore, in a given patient, a definite reaction as indicated by definite signs, must depend on the introduction into the circulation, or into contact with the susceptible cell-substances of a definite amount of the narcotic agent. Whether a narcotic agent be administered by a closed inhaler, by the open drop, or by one of the vapor methods, the amount actually absorbed must be a constant, and the relative amounts of the narcotic agent used out of the can has merely an economic, and no physiological importance.

Dr. Philip Marvel, Atlantic City:

I have just a word to add. First, taking up the question of post-operative anesthetic pneumonia, I think that it is established that there is no such thing as a traumatic pneumonia resulting from the irritation of the anesthetic. It is accepted that it is still a bacteremic disease, as much as pneumonia without the presence of an anesthetic.

One other point, which is involved in the title of the paper, I think; and that is the administration of the anesthetic. We are all proud today to see that the tendency is to have some special person administer the anesthetic. In a great many hospitals, there are people especially trained for this particular purpose; and I think that when one can be trained to look after the anesthesia and not study the technique of the operation at the same time, this is to be advised. Perhaps there have been more mistakes and serious results caused by drowning the patient made by the carelessness of the anesthetist whose mind and attention were too much fixed on the technique of the operator to be attending properly to the patient, than from any other cause. Today we are educating men and women to do the anesthetizing. The employment of women for this work is going to be one of the important advances—women who do not expect to be operators, and whose mind is not occupied by what the operator is doing. Therefore, they are concentrating their attention solely on what they are doing.

Dr. F. D. Gray, Jersey City:

There is just one matter of detail that is new, I think, which I have not heard mentioned in the paper or by any discusser. It is a suggestion recently made by Dr. W. C. Woolsey, of Brooklyn, to combine with ether essence of orange. This suggestion was warmly endorsed by Dr. J. T. Gwathmey, of New York City. It is of especial use in the case of children; as it masks the odor of the ether, so that the children are breathing something agreeable, which is a great advantage. A second advantage is that it completely does away with the cyanosis that occurs particularly in the early stage of anesthesia, but also throughout the operation. It is an important point to give it a trial in children.

Dr. E. W. Hedges, Plainfield:

I am heartily in favor of the drop method. If I understood the reader of the paper correctly, it would take a long time to induce anesthesia by his plan. He gives one drop to every four respirations in the beginning, and one to every two respirations afterward. The child breathes twenty-four times a minute, so he would be getting but twelve drops a minute. I have never seen a patient got under ether with so small an amount. I should like to hear whether that is the exact number of drops Dr. Tuers gives a minute to get the patients under.

Incidentally, he spoke of the vomiting following etherization. Just empirically, we tried, as a matter of routine, the plan of giving one to two ounces of sweet oil after every etherization, before the patients entirely came out, and just as soon as they were able to swallow. It prevented vomiting in almost every instance.

Dr. Tuers, closing.

I mentioned the fact that we induce the anesthesia with one drop to every two or three respirations. We do this because in the beginning the patient's respirations are very rapid. Then, I said, as the stage of excitement increases, increase the anesthetic to one drop to two respirations until you have complete narcosis; and then reduce to the border line.

The Importance of the Care of Children's Teeth.—J. E. Duffield, D. D. S., Camden. The great essentials to health are simple food, fresh air, and exercise; but the most important of all is the food, and the time that is spent in chewing it before it is carried to the stomach. Many chronic cases of dyspepsia have been cured by the thorough mastication of food. It is very important for persons to have sterile, or clean teeth; for if foods are infected during the process of mastication, they must be absorbed in that condition, ultimately resulting in various diseases. Ninety-six per cent. of school children have decayed teeth; and, as diseased teeth are painful to chew with, they swallow their food without proper mastication. Indigestion results from this. Then, too, pus is often discharged into the mouth from the teeth, and swallowed over an indefinite period. The teeth should be brushed at least twice a day. Proper brushing will, to a large extent, prevent decay. The teeth should be examined by a dentist at least once a year. By systematic examinations all serious dental troubles can be prevented.

Discussion opened by

Dr. Wm. G. Schauffler, Lakewood:

We are fortunate in having the co-operation in the conservation work that we are trying to do, of all the men and women interested in this subject; and no more interest has been shown by anyone than by our dental friends. In their action regarding medical inspection, they have done more than we ourselves. The free dental clinics have done much to help along the cause of conservation in children. Dr. Duffield has given the points that make the care of teeth necessary, and I merely want to emphasize two things: First, the pus forming from the decay of the teeth is the source of two-fold injury: first, from the decayed matter itself, which is being swallowed; and secondly, from the mixture of this pus with food materials, which detracts from their food value and injures the growth of the child. There is impending some national legislation, following investigations by the Boards of Health and of Education; and there have recently been sent out suggestions to educational centers for the better care of the teeth of school children. When this matter is better understood, the dental and medical inspectors, working together, can do much good. Dental inspection is an absolute necessity. There has been some question of the advisability of having free medical clinics for school children, but there can be no question of the necessity of free dental clinics. This work has got to be done free by the municipality. It is being done at a place in Monmouth County, where a young dentist established himself and was encouraged to open a free dental clinic. He devoted four hours every morning to the work. He has reached the children, and this has stood him in good stead as a source of income among the adults. Here there cannot be raised the objection that the dentist will interfere with the work of others, as in the case of the medical inspectors, because there are no others there to do this work. That, of course, we cannot carry over to medical inspection. Medical inspectors are absolutely forbidden to care for the patients; but in the case of dental clinics, it can be worked in this way to great advantage. It is necessary for the health of the children that their mouths and teeth should be taken care of.

Dr. Alexander Marcy, Jr., Riverton:

For too long a time but little care and attention has been paid to the proper care of the teeth of children and as a consequence much evil has resulted therefrom. It is essential and necessary if we would have the child do his best, both in and out of school, to see to it that he is not handicapped by any removable physical defect, and particularly to see that he has a good set of teeth. It is certainly a patent fact that the teeth of children of our generation are not as good as were those of their ancestors, and in the evolution of time if this continues, a few more epochs of a century each will see a toothless race of men and women. Whether this is being brought about by design, or as a result of the character and kind of the food we eat it is not my purpose to take up. It should be emphasized that it is not only for the good of the teeth themselves but for the general wellbeing of the individual also that we advocate this care. It is necessary for us to masticate our food thoroughly and our teeth are given to us for this purpose.

Dr. R. C. Newton, Montclair:

I am sorry to see the most important paper of the morning received by such a small audience. There is no question as to the great value of proper care of the teeth. I am glad that Dr. Duffield wrote such a good paper, and that we have had such a good discussion of the points contained in it. We are told that the bad teeth are to blame for the fact that we take the most nourishing parts out of the flour. Whether that is true, I do not know. Another fact is that we do not make our little children chew, and that this is the cause of bad teeth. The mandible determines the shape of the upper teeth. If the lower jaw is used, the upper teeth are driven out first, and the upper jaw is spread. If the lower jaw is not used, this does not occur, and the children suffer from dental caries.

Dr. Alexander McAlister, Camden:

As Dr. Newton says, nothing is more important than the routine attention to the care of children's teeth. This is an important item in the treatment of children's diseases generally, particularly in cases of gastro-intestinal trouble or faulty nutrition. Parents are often indifferent to children's teeth, unless there is actual toothache; and many mouths get into a terrible state, with little or no complaint on the part of the patients. Many constitutions suffer irreparable injury and lives, no doubt, are lost from chronic poisoning and its sequelae. Hence, the importance of examination of children's teeth and mouths. Parents will often call attention to a little blemish or crookedness in a new front tooth, which usually calls for no treatment at all; but will not notice the badly carious molars, which are the most important things to look after. All teeth that are a source of sepsis should be removed at once. The care of the teeth is of great importance to the growing child's welfare. Many children stand at the foot of their classes as the result of neglected mouths. Bad teeth cause bolting of the food, with infection from many pathogenic bacteria; thereby causing indigestion and intestinal toxemia, which result in faulty metabolism and imperfect development of the child.

In conclusion, I would say that within the last six months, I think, there has been a dental clinic inaugurated in Camden; and they are doing good work. If that were done in every city, we should get rid of a great deal of the cause of ill health, especially in children.

Dr. Duffield closing:

I should like to state, so far as the free dental-clinics are concerned, that many municipalities in New Jersey have made appropriations for that purpose. There is no question but that the examination of school children's teeth and the work of the free dental clinic go hand in hand, and are going to accomplish, in the very near future, a great work.

Care of the Mentally Deficient School Child.—Supt. E. R. Johnstone, Vineland. (Read by title.) Published in full in this issue.

Conservation of Youth.—George W. Fitch, Daretown. (Published in July issue.)

RETROSPECT OF CURRENT PEDIATRIC LITERATURE.

Translations from the French, by Emile Brunor, M. D., New York City.

Impetigo of the nostrils in Children, is frequently found amongst the dispensary patients. It is found in subjects who are delicate, lymphatic, deprived of the most elementary care, as regards to cleanliness. The cutaneous infection occurs from within outwards as well as from outwards within. In the first place it is secondary to a purulent chronic rhinitis, in the second, it is secondary to infection by soiled nails. Then both cases are found together. At any rate, whenever you find a case of impetigo due to chronic rhinitis, it is evident that you must, by all means, suppress the nasal catarrh, which softens the skin of the nares and the upper lip, and permits the innoculation. Impetigo manifests itself by its yellow crust, easily found in the nasal vestibule; under these crusts the skin presents erosions and fissures, and the presence of these crusts hinders respiration. The cicitrazation of these erosions and fissures may induce a certain amount of nasal stenosis. Children scatter the staphyloccocus on all parts of the face, on the eyelids and the conjunctiva.

The local treatment includes first the cure of the coryza, the removal of the crust and the healing of the ulceration. If there is a good deal of nasal obstruction, you must remove the crust. Three or four times a day local applications of boric acid or bicarbonate of soda solution, or infusion of chamomile. Tampons may be left in place for a half hour at a time. Then, in the same manner you will apply the Allibour solution. It is prepared according to the following formulæ:

Zinc Sulphate	1 Gm.
Copper Sulphate	3 1-2 Gms.
Saffron	0.30 Gm.
Camphor Water	100 Gms.
Distilled Water	200 Gms.

In the intervals of wet dressing, the skin should be anointed with the following ointment:

Yellow Oxide of Mercury	1 Gm.
Laonline	5 Gms.
Vaselin	15 Gms.

If the skin is very irritable you may substitute:

Zinc Oxide	1 Gm.
Vaselin	14 Gms.

In very obstinate cases Brocq has advised the following:

Oil Cade	1 to 3 Gms.
Yellow Oxide of Mercury	0.75
Simple Cerate	20 Gms.

After a few days of treatment some of the fissures may recur at the angle of the nose. They should be touched with stick of silver nitrate, either a solution of 20 percent, or the caustic stick.

The treatment of coryza should begin as soon as the first removal of the crust will permit it. We do not like the use of the nasal douche, as we consider it dangerous for the ears. We prefer the atomizer. The use of the atomizer is to rid the nose of the mucous which obstructs it. Strong antiseptic solutions should not be used. A mild solution of boric acid or alkaline liquids are preferred. The use of the atomizer is prefered for local applications of antiseptic ointments, balsam of Peru, collorgol, sulphur, etc.

In persistent cases we use applications of solutions of protargol or silver nitrate. Constitutional treatment is very important and you will have to eliminate, if it is present, all intestinal fermentation. Then cod liver oil and the syrup of Iodide of Iron for the tonic effect and general advice as to a better personal hygiene.. Dr. H. Bourgeois *Le Progres Medical*, June 29, 1912.

Treatment of Acute Infantile Asthma.—At the beginning, the attack may be relieved by fumigations, such as are used on the adult and the following powder may be burned and the fumes inhaled by the child:

Opium Powder	0.5
Potassium Nitrate	2 Gms.
Powdered Stranomium Leaves	10 Gms.
Powdered Belladonna	10 Gms.

Or you may use inhalations of pyridine and in older children, any of the anti-asthmatic cigarettes, such as are found on the market can be used.

To relieve the inflammation of the trachea and bronchial tubes, which accompanies or precedes attacks of infantile asthma, recourse to counter irritation, such as dry cupping on the thorax, mustard packs or hot packs. In vigorous children the dypsnea, by the use of an emetic;

Powdered Ipecac	0.5
Syrup Ipecac	50 Gms.

Teaspoonful every 10 minutes until effect is produced, never increasing the dose beyond 10 centigrammes of powdered ipecac for every year. If the attack continues, Antipyrine can be used, as well as Belladonna and syrup of ether, As for example;

Antipyrine	0.75
Hoffman's Anodyne	2 Gms.
Tr. Belladonna	10 drops
Tr. Loelia	20 drops
Syrup Orange Flowers	40 Gms.
Water q. s.	150 c. c.

Desertspoonful every 15 minutes during the attack (for a child 4 years old). Below 3 years, it is better to leave out the belladonna, but the antipyrine may be prescribed at the rate of 0.25 Gm. for every year. In case the above should fail, inhalations of chloroform or ether may be used, a few drops on a gauze compress placed over the nostrils of the child and as a last resort a hypodermic injection of morphine or heroin at the rate of a half milligramme for every year of age, as for example;

Heroin	0.02
Distilled Water	10 c.c.

Inject 1 c. c. in a child of 4 to 5 years of age.

(Oppenheim in *Progres Medicale*)

Treatment of Whooping-Cough.—In spite of all the experiments during the last few years, there is not as yet a specific treatment for whooping-cough. We are obliged to follow indications and limit our treatment to a severe therapeutic hygiene and by employing those few remedies which are left us after discarding innumerable remedies which have been recommended and discarded from time to time. For uncomplicated whooping-cough of the second period of childhood, isolate the child in a well aired spacious room, complete rest should be exacted in the acute febrile forms of the disease, or when the vomiting has weakened the child to any extent. Outside of these special cases the child may be sitting up, provided an even temperature is kept in the rooms that he occupies. Forbid out door exercise during the first [illegible] second period of the attack to children who are very weak or those who have fever, or those who have frequent spasms, or of an abnormal intensity. With these exceptions the majority of our little patients may be authorized to go out whenever the weather is dry and clear during the sunny hours, at the same time avoiding too much running or violent exercise. Change of air, transfer of the child to the country should be advised until the end of the spasmodic period.

Second, prescribe a substantial diet in a concentrated form, especially for those children who vomit. (Eggs, brain, chopped meat, sweet breads, puree of vegetables and creams). Subdivide the meals, which may be numerous but scanty. If, in spite of this, vomiting still persists give after each meal 2 or 3 teaspoonfuls of black coffee.

Third, watch attentively the asepsis of the skin and mucous membranes. Give every day, preferably in the evening a tepid bath at 35 degrees cent. wash frequently the eyes and the ears with warm water, let the older children gargle with a solution of:

Peroxide of Hydrogen, diluted 1 percent. chloral water, or 1 percent. salol. Then morning and night introduce into each nostril a small quantity of the following ointment:

Resorcin	0.40
Boric Acid	3 Gms.
Vaselin	30 Gms.

Or drop a few drops of the following solution:

Resorcin	1 Gm.
Olive Oil	30 drops
Essense of Peppermint	2 drops

or the following solution:

Gomenol	1 Gm.
Sterlized Olive Oil	50 Gm.

Fourth. Every day at different intervals steam the room of the patient with vaporizations of boiling water, in which a handful of the eucalyptus leaves or a tablespoonful of the following mixture:

Oil of Thyme		
Oil of Eucalyptus	a a	10 Gms.
Oil of Turpentine		
Alcohol		250 c. c.

Fifth. If possible, have installed in the child's room an apparatus to produce ozone. It will be well to give 4 to 6 inhalations a day. If ozone is not available, inhalations of ozygen during the spasms are of great service. (Weill & Mouriquand).

Sixth. Anoint the thorax with the following preparation:

Guoiacol	5 Gms.
Quinine bisulphate	4 Gms.
Aromatic Vinegar	200 Gms.

Seventh. Add to the preceding prescription the use of internal medication but it must not be forgotten that the majority of them do not give any lasting benefit, but the result is excellent for the first few days, but it does not continue and consequently it will be necessary to have recourse to higher doses, which might be toxic without any great profit to the little patient.

(a).—(In the first category we place valerin, which alone when associated with the bromides often gives some very good results;

Potassium Bromide	
Tinct. Valeri a. a.	3 Gms.
Syrup of Peppermint	50 Gms.
Water	120 c. c.

Three desertspoonfuls daily for a child 3 to 5 years. Three tablespoonfuls daily for a child 5 to 10 years, or:

Ammonia Valerinate	1 Gm.
Syrup Peppermint	30 Gms.
Water	120 c. c.

Same doses as the preceding).

(b).—(If valerian or bromide should fail, use bromoform as follows:

Bromoform	2 Gms.
Alcohol	30 Gms.
Syrup of Codine	40 Gms.
Syrup of Tolu q. s.	120 c. c.

Give of this preparation every day, as an initial dose as many teaspoonfuls as the age of the child, increasing progressively to double the dose if the medication is well tolerated, provided the child is not sleepy or complains of headache).

(c).—(Or Fluoroforme, which is prescribed in 10 to 20 drop doses daily for each year of age, as for instance; 60 to 120 drops for a child 6 years old, divided in 4 doses of 15 to 30 drops each.

(d).—(If this medication is without effect antipyrine may be tried again in doses of 20 to 50 centigrammes for each year of age and it may be associated with belladonna, as for example;)

Antipyrine	6 Gms.
Syrup of Belladonna	30 Gms.
Oxymel Scillae	60 Gms.
Distilled Water. q. s.	150 c. c.

I teaspoonful contains I gram syrup belladonna and 0.20 of antipyrine. Give in 24 hours as many teaspoonfuls as a child has years of age. In case of gastric intolerance the same dose can be given per rectum, either in suppositories or enema. In the very severe cases of whooping-cough, do not hesitate to have recourse to opiates which Triboulet has demonstrated to be efficacious and relatively innocuous. Dionin may be used at first as follows:

Dionin	0.20
Cherry Laurel Water	10 Gms.

Give every day at the beginning, as many drops as the child is years of age, increase carefully to double the dose. In cases of failure use hypodermic injections of morphine 1-4 to a 1-3 centigramme at bed time.)

(Oppenheim, in *Progres Medical*)

On the Serum Therapy of Whooping-Cough, M. H. Duthroit, in *Societa des Sciences Medicales et Naturelles des Bruxelles*, Julliet, 1911. The author reports the result of 21 cases of whooping-cough treated by the anti-pertussis serum of Bordet. All the patients treated were true cases of pertussis and were not subjected to any other medication. The treatment consistes of an injection of 10 cubic centimeters, which is not repeated. After the injection a diminishing of the number of spasms of coughing is observed. This diminution appears mainly at night. The length of the period of coughing is also usually shortened. Expectoration becomes yellowish and frankly purulent. The treatment is completely inocuous and has, so far, not given to any serum sickness.

Non-Complicated Scarlatina.—First, in the majority of cases the patient should be kept in bed for 20 days and in the room for another 20 days. The classical period of isolation being 40 days, yet a good many cases of scarlatina are completely healed on the 20th day and it seems a burden to inflict such a long period of isolation as the 40 days quaratine exact. Others, on the contrary, have a strawberry tongue and an inflammation of throat on the 30th day and the desquamation goes on very slowly and, of course, it becomes necessary to prolong in such cases the isolation beyond the regular period.

Second. the patient must be kept on a strict milk diet, mitigated at the most, by the addition, to the milk, of tea, coffee and cocoa, and by allowing certain raw fruits, or even cooked during the acute stage of the disease, and as long as certain of the cardinal symptoms of the disease persists. For instance, the fever, the eruption, the tonsillitis, rhino-pharyngeal symptoms, modifications of the pulse or urine. That is in general up to the 15th day when everything has become normal and the disease goes on to a desquamation. Broths, creams, cooked salads, eggs, mashed vegetables, cooked fruits and bread can be successfully added to the diet. Meat and fish should be allowed towards the 4th or 5th week. The salt free diet does not present any appreciable advantages and it causes remarkable loss of weight. In all cases, the urine must be examined every day and on the discovery of the least trace of late albuminuria, institute again the milk diet.

Third, keep the naso-pharyngeal tract aseptic by introducing in the nostrils an oily solution of resorcin 1 percent. or a 5 percent. dilution of eucalyptus oil and by prescribing gargles of 1 percent. potassium chlorate, solution. After these washes, applications to the pharynx with the following mixtures:

Salicylic Acid	2 Gms.
Glycerin and Alcohol of each	20 Gms.

Fourth. In the beginning, give each day a tepid bath and during desquamation the bath must be given with a soap lather, so as to hasten the fall of the scurf. At the same time morning and night the skin should be massaged with the following ointment:

Phenol	1 Gm.
Tartaric Acid	3 Gms.
Glycerite of Starch	200 c. c.

Fifth. When there is a high temperature, above 39 1-2 degrees, the tepid baths should be replaced by cold baths. With a temperature of 25 degrees or even 20 degrees it should be repeated every 24 hours.

Sixth. If there is some weakness which is habitual, in the beginning of those cases of medium intensity a stimulating potion should be given. For instance, for a child of 5 to 12 years as follows:

Ammonium Acitate		
Sodium Benzote	a a	4 Gms.
Syrup of 5 roots		30 Gms.
Infusion of Coffee	q. s.	150 c.c.

Tablespoonful every hour. If the weakness is more marked give hypodermic injections twice daily of camphorated oil.

Camphor	20 Gms.
Sterilized Oil q.s.	100 c c

Inject morning and night 5 c c.

Seventh. Arterial tension or any other sign which might indicate more or less of a suprarenal insufficiency the use of adrenalin solution is called for: Adrenalin 1 to 1000. Give 5 to 10 drops twice a day or give hypodermically 1-4 to 1-2 c c.

Eighth. Should there be any insomnia, which resists the use of the tepid bath, give at night 1 or 2 tablespoons of the following preparations:

Potassium Bromide.		
Chloral Hydrate	a a	6 Gms.
Syrup of Orange Flowers		50 Gms.
Elder Flower water	q s	150 c c.

For a child 6 to 12 years.

Ninth. Prophylaxis of the disease includes the disinfection of all the objects contaminated directly by the patient, rather than that of the rooms. Do not forget that the contagion occurs in the beginning during the tonsillar period and that the desquamation constitutes only a medium of transmission of secondary importance.

R. Oppenheim, *Progres Medical*, Mch, 23, 1912

Some Complications of Scarlatina.—Among the complications of scarlatina, a few such as purulent adenitis, otitis and parotiditis are amenable only to surgical treatment. Others, such as pleurisy or endo and pericarditis present indications other than those diseases which they complicate. We will only take care here, of acute tonsillitis nephtitis and scarlatinal arthritis.

(a).—Acute tonsillitis is due, at times, to a pure streptococcus infection, some times to a mixed strepto-diphtheritic infection. The diagnosis can only be cleared up by a bacteriological examination. In the first case, the following should be advised: First, irrigation of the pharynx, second, applications of the following solution:

Sodium Sulforanite	80 Gms.
Phenol	20 Gms.
Glycerin	20 Gms.

Third. Hypodermic or intravenous injection of electrargol repeated every day until the temperature falls. The use of an anti-streptococcus serum, Marinarok's serum or Moser serum, the latter being prepared with the scarlatinal streptococcus. In mixed infections, the same treatment with the addition of antidiphtheritic serum. As a general rule, the first injection should be used very early, just as soon as you have the least doubt as to the nature of the tonsillitis and without waiting for results of the bacteriological examination.

(b).—Scarlatinal Nephritis. Just as soon as albumunuria is found indicating some renal complication you must immediately put the patient on a strict milk diet. Second, apply cups on the lumbar region at the level of Petit's triangle; third, give a drastic purgative. If the child should vomit and cannot take a purgative, give an enema of:

Senna leaves	
Sodium Sulphate a a	10 Gms.
Boiled Water	200 Gms.

Fourth. When there is habitual oliguria, add 50 grams of lactose to the milk or give infusions of corn silk, or the following may be prescribed:

Theo-Bromine	0.30
Sodium Benzote	0.10

For one cachet, two a day for a child of 10 years, or give the following:

Powdered Squills	0 Gm. .05
Lactose	0 Gm. .10
Powdered Convallaria Magalis	0.30

For one wafer, 3 a day for a child of 10 years.

Fifth. When the nephritis is complicated with hematuria calcium chloride is indicated:

Calcium chloride	4 Gms.
Syrup of Bitter Orange peel	40 Gms.
Distilled Water q. s.	250 Gms.

Sixth. When anuria threatens or is present, cold enemas should be used, given very high, repeated every 3 hours. Very hot baths, hypodermic injections of serum with glucose, bleeding, then in the event of uremia, injections of renal vein serum, according to Renaut's method.

Seventh. During convalescence, when the albumunuria is disappearing, a salt free lacto-vegetarian diet, and finally, in case of residual albuminuria, a cure at Saint Nectaire.

(c) Scarlatinal Arthritis. Purulent arthritis should be treated surgically. In the poly-articular serus, or arthralgic, the following treatment should be given: Absolute rest in bed, second, wrap the painful joints with compresses of methyl salicylate, or the following ointment.

Salicylate Acid	
Turpentine	
Lanoline a a	5 Gms.
Benzoinated Lard	40 Gms.

Or the following liniment:

Chloroform	
Tinct. Opium a a	10 Gms.
Oil of Hyoscyomus	80 Gms

Wrap with oil silk or cotton. Renew morning and night the liniment application, 3rd. Internally; aspirin 50 centigrammes 2 or 3 times a day, giving immediately after a half glass of vichy water. Sodium salicylate shows itself in these cases almost constantly inefficacious.

R. Oppenheim, March 30, 1912, *Progres Medical.*

The State's Need of Medical Inspection of Schools.*—Every country has its proverbs, handing them down from generation to generation. Some are based on superstition, while others are full of truth. The one "Prevention is better than cure" is common to almost every country, but few have made use of its truth.

Plato says, "Medicine is the Science of Health," but since the time of Aescalapius, the doctor in most countries has been treated as a curative rather than a preventive agent.

We seem to realize the force of the foregoing in the face of some terrible epidemic, but as soon as it is conqured, we resume our lethargy. However, of late years there has been some change of attitude in many of the foreign countries, as well as in the United States. One result of this change is the Medical Inspection of School Children. This work was inaugurated in Belgium in 1874. It very rapidly spread to the surrounding countries, Germany, England and France soon taking it in as a part of their civil government. No step seems to have been taken in the United States until 1892, when the Boston, (Mass.), City council moved that an appropriation be made to begin this work. Nothing more was done until 1894, when the money was raised and about the same time New York City began the inspection of some of her schools.

Everywhere the work gave good results and city after city took it up, until at present a majority of the cities and some of the states have laws governing the work.

The City of Atlanta began the inspection of her schools some five years ago and every year since has enlarged her corps, until the work is now carried on by an inspector, an assistant and four trained nurses for the white schools and adequate provision for the colored. Two of the counties in South Georgia have had their schools inspected under the management of the Rockerfeller Foundation and this is about the extent of the work in Georgia.

One year ago the Fulton County Board of School Commissioners decided to institute medical inspection in the schools of the county. I was elected to this place and my duties somewhat ill-defined. Owing to the peculiar conditions existing in the rural schools of this and others of the Southern States, there was no beaten path to follow and I had to somewhat outline my own course of work. It took some little time to get the teachers interested, for to them the work was new. While many of the patrons of the schools naturally took kindly to any movement which was to ultimately benefit their children, there were some who looked on it as an infringement of their rights as parents to govern their children. The children, too, had to be often reassured, since the rural child is, on account of his somewhat isolated position, more timid than the city child.

Bearing these facts in mind, I tried to pick out major defects—those that were either prohibiting the child in proper attendance at school or bade fair to stunt its mental or physical development. Minor defects were left until the system became more thoroughly established, at which time they could be righted. We used the most common system, with a few modifications. At the top of the blank in the grade, on the left hand side, a space for the name and age and at the top a list of the most common defects found;

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*Abstract from paper by Hal Curtis Miller, M. D., read before the Georgia Medical Association.

if no defect is found in a child this is left blank, but if one or more exists, this is marked under proper heading. The original is filed at the school and a carbon copy filed at the office of County School Superintendent. The parent is notified of any defect found and asked to have this looked after.

In examining twenty-five hundred children I made note of four hundred and fifty defective, there being in many of them more than one defect. This is a rather low percentage as compared with other statistics, but when taken in the light of the standard I used and the fact that already three-fourths of that number have been treated, it can be seen that no little good has been done the schools.

The most common defects were in order named: Defective eyes, tonsils and adenoids; anaemia and defective teeth. The teachers have reported that those children receiving treatment have, with few exceptions, been doing better work.

Also it has been my function to detect and isolate cases of infectious or contagious diseases; to look after the general hygiene and sanitation of the schools; and to instruct both teachers and pupils in these subjects.

Fractures at the Elbow in Children.—Dr. W. Campbell (*Am. Jour. Obst.*, April, 1912; *Int. Journal of Surgery*, June, 1912), points out that a child's elbow is not a miniature adult elbow, but is formed by epiphyses in the process of development. An exact knowledge of the development of the elbow is necessary to interpret the radiograph and reduce the fragments. As the child resists a local examination and the muscles are contracted, it is necessary to induce anesthesia just sufficient to relax the muscles and permit free palpation. The localization of ecchymosis should be noted. If it surrounds the elbow supracondylar fracture should be suspected; if it is localized—fracture of the condyles. In palpation the normal anatomical relations of the uninjured elbow should be noted. If the thumb and middle fingers be placed on the internal and external condyles and the index finger on the tip of the olecranon, then when the forearm is fully extended the three bony points lie in the same transverse line. Any modification of the normal relations of these three points is due to fracture or dislocation. The head of the radius can be felt in the dimple behind the elbow. Its rotation is manifest when the forearm is pronated and supinated. In injuries about the elbow the determination of the position of the radial head is of prime importance. The "carrying angle" of the two arms—the obtuse angle which the extended forearm forms with the arm should be compared; this angle is modified in certain fractures of the elbow. The movement of the elbow joint, both flexion and extension, should be noted; remembering that there is normally no lateral motion in the extended elbow-joint. Each fracture is a special problem with its individual needs and its peculiar indications, but the following precepts are considered a safe guide in all cases: 1.—A clinical examination under anesthesia is the first requisite, but it is never sufficient; it must be supplemented by an X-ray examination. The radiographs should be made and interpreted by a radiographer of experience. 2.—Reduce the fracture by such maneuvers as are efficient in accurately coapting the fragments. Care should be taken to avoid any rough manipulation which only exaggerates periosteal lesions and consequent impairment of function. Firmness and gentleness are always more effective. 3.—Immobilize permanently only when certain that reduction has been obtained, and that the position of the arm and the splint are adequate to maintain reduction. This will be evidenced by (a) normal conformation of the parts; (b) a normal range of flexion and extension; (c) the confirmation of a second radiograph. The procedure should be as follows: After reduction has been obtained and the arm placed in that position which seemingly is most efficient in maintaining reduction, a temporary splint should be applied and a radiograph taken; if the picture confirms the accuracy of reduction and efficiency of immobilization, then the temporary splint should be made permanent. And no permanent immobilization should be attempted until satisfactory evidence has been obtained that the reduction, position of the arm, and splint are as perfect as the character of the injury permits.

Serum Treatment of Pneumonia.—Dr. Rowland G. Freeman of New York read this paper before the Hot Springs meeting of the American Pediatric Society, *Medical Record*, July 27th, 1912. He said that of the three treatments that were based on laboratory investigation one might mention the use of leucocyte extracts advocated by Hiss, the use of vaccines either commercial or autogenous, and the use of the serum. He had tried the antipneumococcus serum on account of the usually favorable results reported. The cases admitted to the series were those with high temperature with good signs in the chest. He used alternate cases as controls. In none of the cases was there any irritation at the point of injection. In all of the cases the injections were followed by urticaria, but without fever or general disturbance. The average age of the children injected was twenty months, and of the controls eleven months. In many cases there was an immediate change in the appearance of the child. Children that looked septic in several cases after the injection had a good color, were brighter, took feeding better, and seemed much improved, although the condition in the lung was no better or spreading. The serum injections, while apparently affecting the course of the disease favorably in some instances, appeared to have no result in others; in most cases there appeared to be a better reaction on the part of the child after the injection than before. The injection was usually followed by some reduction in leucocytosis and the percentage of polynuclear leucocytes increased. In these favorably influenced cases there was little spreading of the disease after injection, and in some a fairly rapid resolution. The pneumococcus serum presented a safe method of attempting to influence the course of pneumonia in children; the addition of antistreptococcus serum seemed to offer no advantage over the use of the pneumococcus serum alone.

Dr. Matthias Nicoll, Jr., of New York said that he had had a fairly large experience with the pneumococcus serum both in children and in adults and he thought that Dr. Freeman's conclusions were those that all must arrive at, namely, that the case was not proven. Sometimes good results were obtained and at others no results at all. One should give large doses, at least 100 cc. Dr. Nicoll related his experience in attempting to immunize diphtheria patients against pneumonia and could not see that the mortality rate was affected by the use of the serum. It was difficult, therefore, to have a great deal of faith in the curative value of a serum which had so little apparent protective power against the organism whose activities it was designed to control. Dr. Nicholl said he preferred to give the serum intravenously, but that a dose of 100 cc. could easily be given subcutaneously. The serum should be given in prolonged cases of pneumonia where the patients seemed to be daily losing ground. He had never seen any bad results from the injections even when large doses were given intravenously.

The Employment of Salvarsan in Infants and Young Children.—Dr. L. E. LaFetra of New York read this paper before the Hot Springs meeting of the American Pediatric Society, *Medical Record*, July 27th, 1912. If they considered only the moderate grades of congenital syphilis the older methods had been quite satisfactory. On account of the high mortality of the serious cases and the possibility of late manifestations of the disease a more powerful and certain remedy was needed. Salvarsan might be given indirectly to the infant by injecting the mother during gestation or lactation, or it might be given directly to the infant. The subcutaneous method produced bad sloughs or cellulitis and had to be abandoned. Since June 11, 1911, in the children's wards of Bellevue Hospital, Dr. LaFetra had treated 25 cases of congenital syphilis. Of these ten received salvarsan either with or without mercurial treatment, while 15 were treated by mercurials alone. The ages of the 15 patients in whom only mercury was used ranged from three weeks to one year, most of the babies being about three months of age. The ages of the ten cases treated with salvarsan ranged from two months to two and one-half years. Of those treated by mercurials alone, three improved, two were unimproved, and ten died. The ten cases treated with salvarsan showed a mortality of only two; all the other cases were decidedly improved and showed marked gain in weight and improvement in general condition in addition to the disappearance of their specific symptoms. Dr. LaFetra concluded that while the method of giving salvarsan to the nursing mother was valuable and should be used when the mother was available, the surest method consisted in giving the salvarsan to the infant and that both direct and indirect methods should be used where possible. The dosage should not be less than 0.01 grams per kilo weight. Repeated injections and supplemental treatment by mercurials might be necessary. The Wassermann reaction should be followed for one year.

The Dextrins and Maltose in Infant Feeding.—Dr. Thomas S. Southworth of New York read this paper before the Hot Springs meeting of the American Pediatric Society *Medical Record*, July 27th, 1912. He said that in health infants seemed to take with about equal facility the three sugars most commonly employed in making up the deficiency of carbohydrates in diluted cow's milk, namely, milk sugar, cane sugar, and so-called malt sugar, but it had remained for recent investigators of the pathology of nutrition to assign to each of these forms of sugar its relative position as a disturbing factor. Although the advantages of the so-called malt sugar, or maltose, had again received wide recognition for purposes of restoring deficient or halting nutrition in infants, and for furnishing sufficient calories during recovery from food injuries there had been little appreciation of the *rationale* of its action. The terms malt sugar and maltose were inaccurate and misleading. While pure maltose was a rare product of the laboratory, too expensive for general use, and consequently never employed for infant feeding, the commercial products to which this generic term was too often loosely applied were numerous and it was doubtful whether any two of them has the same composition. The term embraced almost any preparation produced by the action of diastatic ferments upon starch. While lactose and saccharose were given in the food by themselves maltose was never administered without an admixture of dextrins, which latter, while capable of being further elaborated into maltose, and subsequently into dextrose, had, for the time being, very different chemical and physical properties. This association of the dextrins with maltose, instead of being a negligible matter, was a factor of considerable importance and might be assumed to play a large part in the favorable effects of the malt preparations in disturbed conditions. Although malt preparations were spoken of as less fermentable than other sugars, it was, of course, an error to think of maltose itself as not liable to fermentation of certain types, since this property of maltose was relied upon in all brewing operations. Dextrin remained unfermented in beer and was immune to fermentation in the intestine until reduced to assimilable maltose. The presence of dextrin played no small part in the therapeutic and nutritive values of maltose dextrin preparations. An interesting field of research was now open for determining the nutritive and therapeutic values in normal and pathological cases of high, average, or low percentages of dextrin in maltose-dextrin mixtures.

Maltose in Infant Feeding.—Dr. John Lovett Morse of Boston said there were three different sugars used in infant feeding, lactose, saccharose, and maltose. Maltose was seldom, if ever used in pure form. These sugars were all disaccharides, lactose being a combination of dextrose and galactose, saccharose of dextrose and levulose. The dextrins were bodies formed in the change from starch to maltose, and there was a great variety of them. Their composition was not well known. This disaccharides were not absorbed as such from the intestine under normal conditions, but were first broken down into their respective monosaccharides by special ferments, maltose, saccharase, and lactose. These were found in the mucous membrane of the small intestine. Maltose was the most quickly absorbed of the three disaccharides and saccharose next. The disaccharides were all fermentable. The composition and maintenance of the normal fecal flora was without question due to the relative excess of carbohydrate, in the form of lactose, in the milk. It was, therefore, of importance to have a considerable amount of sugar in the food of babies fed on mixtures of cow's milk. According to Kendall lactose favored the growth of the *bacillus bifidus*, while maltose favored the growth of the *bacillus acidophilus*, which, though normally present in small numbers, if present in large numbers was liable to produce an excessive degree of acidity which might cause intestinal irritation and intolerance for sugar. Finkelstein and Meyer recommended the use of malt sugar in connection with their "eiweiss-milch" after the disappearance of acute symptoms in order to avoid loss of weight and disturbance of nutrition. The use of this method of treatment during the past year had convinced him that there was a variety of intestinal indigestion in infancy which was relieved by reducing the sugar and salts in the food to the minimum and giving large amounts of casein and that the dextrin-maltose preparations could be given to these patients sooner than lactose without causing a return of symptoms. This type was characterized by a number of stools of diminished consistency, green in color, often frothy, acid in reaction, and not infrequently containing mucus and fat curds. In feeding normal infants lactose was for many reasons preferable to maltose, but there was a type of indigestion due to fermentation of sugar in the treatment of the convalescent stage of which maltose was better borne than lactose. Maltose was contraindicated in the treatment of diarrhea due to the gas bacillus and similar organisms and was less useful than lactose in the treatment of those diarrheas caused by the dysentery bacillus.

Some Fundamental Principles in Studying Infant Metabolism, was the subject of a paper Dr. Fritz B. Talbot and Dr. Francis G. Benedict of Boston, presented before the Hot Springs session of the American Pediatric Society, *Medical Record*, July 27th, 1912. They stated that knowledge of the energy requirements of infants and the energy content of their food was of fundamental importance in studying their rate of growth and in the treatment of nutritional disorders. The ideal method of determining the energy transformation of infants was that of direct measurement of the heat eliminated and produced, but this involved expensive, elaborate apparatus. The method which they used was that of so-called indirect calorimetry, e g., a computation of the energy transformations from the gaseous exchange. It was possible to compute with considerable accuracy the energy transformations of an infant from the amount of oxygen consumed and the amount of carbon dioxide produced. The direct measurement of oxygen in young infants had but rarely been determined. Direct determination of carbon dioxide was less difficult and had frequently been made in foreign laboratories. It was the purpose of the paper to point out the inconsistencies arising from the determination of carbon dioxide in infants without taking muscular activity into consideration. They were disposed to question the desirability of long experimental periods for establishing the basal metabolism of infants when such periods might include not only quiet sleep but also periods of activity and even crying. It was necessary to find out what was the ideal length of the experimental period in the infant. This, they thought, was the period when the baby was asleep, absolutely quiet muscularly, and preferably without food in the stomach. The apparatus they used was a modification of that of Benedict and Hamans for experiments upon hypophysectomized dogs. All metabolism experiments in infants made without controlled pulse rates and without graphic records of muscular activity were lessened enormously in value by these two factors.

Dr. John Howland of St. Louis, said that if they were able to further perfect the apparatus so that the amount of oxygen could be determined as well as carbon dioxide they would have added enormously to their facilities. Instruments such as Dr. Lusk had used were too expensive and it required four trained men to manage one of them. The methods employed in this country and abroad differed widely. Abroad they were using apparatuses of fifteen or twenty years ago and the results were of no use to investigators in this country. Their results were full of mistakes. Their time periods were twenty out of twenty-four hours, taking children awake, asleep, or crying. These children could not be kept quiet and the result was that the first period of metabolism was 20 or 25 per cent. higher than it was during the last period when the child became accustomed to the apparatus. Dr. Howland hoped that a formula would be found which would not require the estimation of square and cube roots and which could be used more readily and more accurately.

Dr. Fritz B. Talbot of Boston, in closing the discussion, said that with regard to the relation between the pulse rate and muscular activity about which Dr. Hamill had asked, he did not know whether there was a definite relation. When the baby was quiet apparently the pulse was at its minimum rate. The charts showed that the pulse varied from ten to fifteen beats during the course of three or four minutes. During the greatest muscular activity the pulse went to its highest point. He did not have sufficient data to enable him to draw definite conclusions as to how much the elevation of the pulse would modify the amount of carbon dioxide excreted. Apparently there was a definite relationship. If the charts were sufficiently studied it would be noted that, in certain instances, there was not sufficient exercise recorded to correspond to the elevation of the pulse rate. His only explanation for this was that the pulse rate was only taken once in every six minutes and the baby might have moved two minutes before. He hoped that by fall they would so perfect their apparatus that it would be possible to estimate the amount of oxygen.

BOOK REVIEWS

Lawyers, Doctors and Preachers, a satirical survey of the three learned professions, by George H. Bruce, A. M., L. L. B., of the New York, New Jersey and Nebraska Bars, author of "Humors of the Law," "Medical Examinations from the Lawyer's Standpoint," "Some Great Men," etc. Copyright 1912, published by The Irvington Publishing Company, 24-34 New Chambers Street, New York City, price $1.00, postpaid.

It is a deplorable fact that lawyers, physicians and ministers are very much misunderstood by the laity, more especially the proletariat members thereof, who hold to the popular opinion that the lawyer robs you of your estate, the doctor hastens your exit from the Mundane sphere and the minister or priest sells you a gold brick when he helps you over the River Styx and so the members of the learned professions have been made the subject of attacks in books, in the press and from the platform—and for so long "that the memory of man runneth not to the contrary."

"The members of the professions should read this—they will be compelled to laugh at each other, and themselves. The public must not miss it for there is so much that is familiar, told so much more interestingly than they ever heard it before. Every phase of the profession is dealt with and the conclusion—well—we won't anticipate—but all ends happily, and you will agree with the sentiment there expressed."

"Mr. Bruce shows such an intimate knowledge of the traits of the members of the learned professions that he might readily be a member of either or all—assuredly he displays an unusual ability at analysis of character."

Our Baby, a concise and practical guide for the use of mothers in the care and feeding of infants and young children, by Ralph Oakley Clock, Ph. B., M. S., M. D., Assistant Physician to the Out-patient Department of the Babies' Hospital of the City of New York and St. Mary's Free Hospital for Children, New York City, Clinical Assistant Obstetrician to the New York Post-Graduate Medical School and Hospital. Red muslin binding, $1.25 net, postpaid, $1.37. New York and London, D. Appleton and Company, 1912.

A concise and practical guide for the use of mothers in the care and feeding of babies. A very full and complete reference book, written in plain English, by a man who has spent years in giving sensible advice to mothers who have come to the babies' Hospital in New York for guidance. It takes up the care of babies from birth until two or three years of age, and discusses hygiene, training and general care—baths, exercise, outings, nursing habits, signs of illness, etc.—as well as the all-important subject of feeding. The information is based upon the newest investigations and soundest scientific teaching, and it is conveyed with such simplicity that no mother will have difficulty in understanding it. It is a book in which the utmost confidence may be placed.

The acute infectious diseases have not been mentioned by the author for the reason that they are conditions which should be treated by a physician. Likewise the care of premature infants has been intentionally omitted because such infants should be constantly under the care and direct supervision of a skilled pediatrician, who has made a special study of such cases. Likewise no mention is made of the hygiene of the mother before delivery, since this is a separate subject, being fully dealth with in textbooks on this particular point. Suitable illustrations illuminate the text wherever deemed advisable. Altogether it is a very practical mother's helper. It is a book that every young mother should not only have but be thoroughly familar with. It is a pleasure to commend this practical, concise guide for the use of mothers in the care and feeding of infants and young children.

The Healthy Baby, the care and feeding of infants in sickness and in health, by Roger H. Dennett, M. D., Instructor in Diseases of Children in the New York Post-Graduate Medical School; Assisting Attending Physician to the Babies' Wards in the New York Post-Graduate Hospital; Chief of Clinic in the Post-Graduate Dispensary for Children; Fellow of the New York Academy of Medicine. Price $1.00 net. New York, the Macmillan Company, 1912.

This little book of Dr Bennett's is gladly welcomed to the reviewer's desk. It is a work intended primarily for mothers. The author's chief aim has been to present a book for the mother that is clear and concise, serving as an intelligent guide in the rearing of children and as such it may be safely recommended to young mothers. The discussion and treatment of any but the simplest ailments has purposely been left out, since this book is intended only for the mother's direction, other than simple ailments being left for a well trained physician or a specialist in children's diseases. The chapter on infant feeding is especially good. The author has followed the wise plan of omitting all of the complicated formulas, which tend to confuse and only the simplest milk, water and sugar mixtures are described. This is a book that should be in the hands of every young mother. Herein she will find plain, practical, sensible instructions, based on the very latest conclusions of pediatric science.

The Care of the Skin and Hair, by William Allen Pusey, A. M., M. D., Professor of Dermatology in the University of Illinois. New York and London. D. Appleton and Company, 1912.

In this little volume Dr. Pusey only considers the skin and its more common disorders from the standpoint of what every intelligent individual should know, both because of practical and personal importance. This is really a treatise on the hygiene of the skin and not a work on the self treatment of skin diseases. The subject matter is presented in a clear concise style, beginning with a gross description of the skin, followed with chapters on nutrition and functions of the skin, then with directions for the care and treatment of the skin, the value of bathing, soap, powder, ointments and cream, massage, etc., are all duly considered. Wrinkles, freckles and tanning receive the author's careful consideration.

The hair, its structures, and functions, its care and hygiene are gone into in detail. It is a little volume full of valuable suggestions, which every young woman ought to familiarize herself with and the physician can do his patients no greater service than bringing this book to the attention of the mothers and daughters of his clientele.

PEDIATRICS

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EDITORIAL

THE PREVENTION OF THPHOID FEVER BY PROTECTIVE VACCINATION

The present trend in medicine is rather the prevention than the cure of disease. This is well evidenced by the great advances made in infant feeding, which now annually saves thousands of lives of infants and children. This conservation of infantile life is due primarily to the advent of "Certified Milk," "Milk Inspection," and "Hygienic Milk Stations," supervised by competent physicians and efficient nurses, which have lessened "cholera infantum," once the dread of mothers and the profession, as well as other gastro-intestinal disorders due to bad milk and worse methods of feeding.

The role of the sanitarian is assuming greater importance now than ever before, because of which there is a steadily decreasing death rate in all our cities, and morbidity is decreasing out of proportion to mortality. Perhaps the most striking example of this is the scientific "cleaning up" by the sanitary officers of the United States Army in Cuba and the Canal Zone. Panama, the former pest-hole of the continent, or of the world for that matter, now shows a better health record than the most healthful American cities, where the sanitary officer has less authority.

But there is another phase of the prevention of disease which is making equal strides with the work of the sanitary officer. This phase deals with the protection of the individual by rendering him immune to the infections to which he is constantly exposed. One line of progress tends to remove the danger from the community as a whole, the other to protect the individual against the danger still present. The oldest and best known of these protective measures applicable to the individual is Jenner's discovery of vaccination against smallpox. So effective is this means of protection that many individuals never come in closer contact with the disease than the newspaper announcement of a smallpox scare in some neighboring city, and even now the deeply scarred victim of its ravages is a rarity.

A more recently introduced form of protection to the individual, one of ever present utility, is the prevention of typhoid fever by vaccination. This procedure was first introduced on a large scale by Sir Almroth Wright in the Boer War. Many regiments were inoculated, the records were imperfectly kept, and it met the usual fate of an innovation—enthusiastic praise and bitter denunciation. These were so evenly divided that the practice was abandoned. But a Royal Army commission was appointed to study the whole subject. After the careful collection of statistics and much scientific investigation this army commission recommended that the practice be resumed. Eight years have elapsed and statistics are available from armies in their active campaigns, in home camps, and in larger maneuver divisions. All experiences point in only one direction. English, German and American army reports all bear witness to the unusual effectiveness of prophylactic vaccination against typhoid fever.

More recently corroborative evidence has come from another source. Hospital nurses caring for typhoid patients are especially liable to contact infection. In the Massachusetts General Hospital a study of the records for some previous years revealed the fact that no season had passed without some nurse succumbing to this contact infection. In 1910 the nurses and attendants were all inoculated and no case of typhoid fever occurred among them. This work has been extended to the nurses, attendants and internes in other Massachusetts hospitals with equally satisfactory results. It seems not too much to expect that contact infection in hospitals will be eliminated when prophylactic vaccination has been universally adopted, in hospitals, as a compulsory measure.

But this is only a beginning in civil life. Vaccination against typhoid fever had its inception and early growth in the army as a measure of military necessity, and it is to this source we must look for statistics as to its efficiency. As long, however, as there is an annual death of more than 20,000 in the United States alone from typhoid fever, it will find its greatest field of usefulness in civil life. Here is more than an army in civic life dying annually of typhoid fever. Put the annual case incidence in the United States at 200,000, which is a low estimate, and put the average of time lost to the individual at seven weeks, and we get an idea of the appalling morbidity due to this preventable disease and the loss of time due to its ravages. Add to this the cost to the individual aside from his loss of time, and you have the grand total of the cost of typhoid fever.

The public is beginning to realize that the "ounce of prevention is worth many pounds of cure." Civilians are constantly seeking vaccination at the hands of army officers. Many health departments are now supplying the vaccine free for the use of physicians. The Board of Health of Birmingham, Ala., supplied it to physicians who have used many thousands of doses.

Perhaps the most urgent need of protection after the army service and hospital staff is in the multitude going to insanitary resorts for summer vacations. Great numbers of people leave the cities annually for the mountains and seashore where the sanitary conditions are the worst possible. These people depend for their water on unprotected wells, where flies are always present in swarms, where the milk supply is uninspected, where typhoid is endemic, but where the very words "typhoid fever" is suppressed, both among physicians and the laity.

New York's typhoid season and the return of this summer vacation crowd is coincident. It is well known to every physician that protection at these places is out of the question, but it should be given to the individual before going to such resorts, in the form of prophylactic vaccination. This is work for the family physician who assumes responsibility for the continued good health of his clientele.

PERIOD OF IMMUNITY FROM TYPHOID VACCINATION

The length of time the protection lasts is as yet undetermined. The practice in the United States Army is to vaccinate only once during an enlistment of three years. Statistics collected from some of the earlier work in the British Army indicate that the protection begins to wane after about 30 months.

These statistics are, however, vitiated by the fact that some of the vaccine used was spoiled in making by overheating, heating in the presence of antiseptics, and by other means.

Work done by the medical corps of the United States Army shows that opsonins and agglutinins are still present in the serum after an interval of from 20 to 24 months. These are the same antibodies that are present in the serum of a typhoid fever patient, but in that case in a less concentration, and they disappear more quickly. In other words, the immunity developed in response to vaccination is the same, as far as is known, as that conferred by an attack of typhoid fever. But the initial inoculation immunity is the more powerful of the two. On theoretical considerations, therefore, it should last during the life of the individual. The length of time during which this protection lasts is, however, a question to be decided by future experience and the careful collection of statistics. Certainly it lasts long enough to justify the individual in availing himself of its protection.

The inconvenience caused by the inoculations is negligible. Three injections are given, with ten-day intervals. The first is one of 500,000,000 dead typhoid bacilli, the two others of 1,000,000,000 each. These are given just under the skin, over the insertion of the deltoid, in the same way as any hypodermic medication. The local reaction consists of redness, a brawny unduration, and superficial tenderness. This passes away in 48 to 72 hours. The systemic reaction is *nil* in about 65 per cent. of cases. In less than 0.1 of one per cent. of cases the reaction is so severe as to be alarming—fever above 103 degrees, malaise, nausea and vomiting. In the remainder of the cases the sensation is that of an oncoming severe attack of the grippe—slight fever, aching bones and joints, and in some cases slight nausea. In all cases, however, the systemic reaction passes away in about 24 hours, and the patient returns to his usual health. Up to the present time no untoward accident has occurred in the history of vaccination against typhoid fever.—J. G. C.

A LOW DEATH RATE AND A LOW BIRTH RATE

At the Eugenic Congress held recently in London some of the best known authorities of the world discussed the matter of the birth rate versus infantile mortality. Among these were several Americans including Hoffman and Davenport. Hoffman expressed the view proving, or attempting to prove, the point by means of statistics, that native born Americans were decreasing somewhat rapidly owing to the fact that their birth rate was becoming more and more limited. The same speaker voiced the fear that in the not far distant future perhaps, native born Americans, the old stock, would be swamped by the influx of foreigners and by the great fertility of women of foreign birth. It is not only in America though that the birth rate of women of what, lacking a better term may be denominated the more desirable class is decreasing. In every civilized land precisely the same state of affairs prevails and the more civilized the nation, the lower the birth rate. For example, France which is certainly the nation the highest in civilization has also the lowest birth rate. But the argument may be brought forward that *parri passu* with a lower birth rate goes a lower death rate, which fairly balances matters. However, this argument will not bear dissection. As Sir James Barrally pointed out in his presidential address before the British Medical Association a few weeks ago, that during the last century or more we have been very busy trying to find out the causes of disease, the best methods of their elimination and the proper treatment of our patients. We have been successful in this endeavor to such an extent that a selective birth rate which was and is nature's method of eliminating the unfit has been at least partially suspended by our efforts. In consequence it is of supreme importance that we should see that the highest form of protoplasm, the germ plasm, that is capable of starting the individual life and giving rise to the greatest amount of differentiation of structure, with the accompanying functions should be of the finest order, for an impure germ plasm cannot tend to the highest evolution of the race no matter under what environment it is developed. A high birth rate is invariably accompanied by a high death rate, this is nature's effective method, slow but which produces a fine race. A heavy infantile mortality selects the weaker individuals and leaves a stronger population physically to the later years of life.

The dominant idea now appears to be to produce quality rather than quantity, but the result in civilized countries unfortunately is that the most unfit mentally and physically are producing offspring at a far more rapid rate than the fit and it would seem that in the end the outcome must be disastrous. If there be, as probably there is, a fairly stringent selection of the weaker individuals by the mortality of infancy and childhood what will happen if by increased medical skill and by increased state support and private charity, we enable the weaklings to survive and to propogate their kind? Why undoubtedly, we shall have a weaker race, and a more diseased, vicious and criminal race, for the general death rate is selective. Not only do the weaklings survive but those burdened from birth with senous congenital defects are now safely brought into the world. Karl Pearson drew attention a short time ago to the fact that there are cases now in which Caesarian Section appears to be the usual method of child birth. Eugenists assert, and assuredly their assertion is not without force, that the right to live does not constitute the right of each man to reproduce his kind. Therefore, if progress is to be continued, the mental and physical standing of parentage must be raised. We cannot produce a fine race by merely checking the infantile mortality and Karl Pearson shows that if we interfere with nature's effective but rough shod methods of race betterment we must take her task into our own hands and see to it that the mentally and physically inferior have not a predominating fertility.

The present system is excellent for the individual and bad for the race and if carried too far spells disaster. If a lower birth rate meant better quality of children in all classes all would be well. But it denotes an exactly opposite condition, is inspired for the most part by purely selfish motives and the more quickly the intelligent part of the community understands the situation from a broader point of view the better will it be for all concerned.

MENINGITIS IN INFANCY DEPENDENT ON BACILLUS COLI COMMUNIS

Meningitis in infancy is seldom the result of infection by the bacillus coli communis. In the Lancet, July 27, 1912,Dr. E. U. Smith and A. W. G. Woodforde report such an occurrence

The child thus attacked was five months old and cultural examinations of fluid obtained by lumbar puncture showed conclusively the presence of the bacillus coli. Treatment by vaccine seemed for a time to be effective, but eventually the child died. A necropsy was refused but that the cause of the meningitis was infection by bacillus coli appears certain. Primary bacillus coli infection appears to be either a very little noted or an extremely rare affection. The literature on the subject s very scanty but from a review of cases recorded by Hoit, Nobecourt and Dr. Pasquick, Noeggerath and Scherer it would seem that primary B. coli meningitis is a disease of infancy and manifests itself in two forms (*a*) as a serous meningitis (*b*) as a suppurative meningitis. Further consideration shows that as regards symptoms the disease is indeterminable from other types of acute meningitis, while as regards prognosis it is by no means invariably fatal. Recovery may be presumably complete or be attended by sequelae such as may follow any acute meningitis as mental deficiency, hydrocephalus, loss of special senses, etc. A differential diagnosis from other types of meningitis can only be made by a careful examination of the contents of the cerebrospinal fluid which should reveal the presence of the pneumococcal, tubercle bacillus or other offending organisms. Where typhoid is in dispute, a Widal reaction and the separate cultural features of the two organisms will easily distinguish them.

PEDIATRICS

ORIGINAL ARTICLES

ADENOIDS IN INFANCY*

BY

LEWIS W. ELIAS, M.D.
Asheville, N. C.

This is not a comprehensive review of adenoids. It is, rather, an effort to focus attention on the important influence that adenoids exert during infancy; and to urge their recognition at this age.

All are properly instructed in the symptoms of adenoids and their effects after the third year. Earlier than this, we seldom think of them, and less often examine for them. The specialist does not have the opportunity while the general practitioner neglects to use it. Thus adenoids in babies receive little attention. Yet text-books on children's diseases for a number of years have been calling our attention to the before unsuspected frequent occurrence of adenoids in infancy.

By the presence of adenoids we do not mean the mere existence of lymphoid tissue on the vault of the pharynx, which is normal, but a hypertrophy of this tissue, so as to either cause symptoms of its presence, or to cause complications referable to it. In other words, the only adenoids which we know as such, are those giving trouble.

Adenoids may be present at any time from birth to old age. Symptoms of their presence vary with the patient's age. If we wait for the "adenoid face," or mouth breathing, or snoring, we will frequently overlook the presence of adenoids in babies. In infancy they may cause most of the classic symptoms that we find in older children; but especially frequent are: nasal obstruction and discharge, chronic cough, ear complications and symptoms referable to digestive and nutritional disturbances. It is to these that I shall devote myself.

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*Read before the North Carolina State Medical Society, June 21, 1912.

But first note a few points not usually borne in mind, namely, that in the first weeks of life a baby does not know how to breathe through its mouth. A complete nasal obstruction, although the air-way to the lungs may be entirely free through the mouth, will cause cyanosis and exhaustion, and eventually death. On the other hand, adenoids may be present which cause no obstructive symptoms, and yet make swallowing so painful that the child may starve, and the adenoids remain unsuspected.

Let us now briefly consider the symptoms which suggest adenoids in babies.

In nasal obstruction and discharge we find the baby suffering from a more or less chronic rhinitis, which is hard to cure, and insists on recurring. This obstruction interferes with nursing, making the child appear indifferent to its food, and impairs oxygenation, and the proper development of the chest. Adenoids are so frequently responsible for these conditions as to over-shadow all other causes that may be thought of.

The presence of adenoids may cause a paroxysmal cough closely resembling purtussis. A chronic cough, usually worse at night, or on lying down, is another, and sometimes an only, symptom of adenoids. Morse says that adenoids are one of the most common causes of persistent cough in infancy. He relates in Case Histories in Pediatrics an example of this sort. I quote briefly from his account:

"Virginia G., seven months old, had a cold in the head which lasted about a week. Soon after recovery from this cold, she began to have paroxysms of cough at night and during her naps. She did not cough much when awake, had no nasal discharge or fever, did not snore at night or keep her mouth open, and nursed well. The physical examination showed nothing in the nose, fauces or chest, to account for the cough. Nevertheless, she coughs and there must be some cause for it. This cause will probably be found in the naso-pharynx, in spite of the absence of all of the symptoms of adenoids common in older children. Examination of the naso-pharynx then showed a small amount of soft adenoids, not sufficient to interfere in any way with respiration. Adenoids of this sort, however, if inflammed, will often secrete just enough fluid to keep up a constant tickling of the throat and cough when the baby is asleep. Removal of the adenoids will stop the cough at once."

Again, adenoids may become infected and absorption from them cause high fever and prostration. A case illustrating this is the following: George L., two years old, had fever, cough, and marked prostration for eight days. I found a temperature of 104° F., with nothing to explain it but slightly inflammed tonsils and a mass of adenoids. Nasal breathing was obstructed; there was some nasal secretion. A precautionary culture from the throat showed no diphtheria. In the meantime, treatment of the adenoids, by means of drops in the nose, was followed by immediate and marked improvement. Within two hours after this treatment was instituted, the child, for the first time since the beginning of its illness, was down on the floor, playing with its toys and taking a lively interest in its surroundings. The temperature came down rapidly, and permanently disappeared within twenty-four hours. The cough disappeared likewise.

Ear trouble in infancy is usually secondary to some primary infection, or to adenoids, the latter being by far the most frequent cause. Even when the otitis follows a previous disease, it usually occurs only in those cases where adenoids also exist. Therefore, with any disease that may be complicated with otitis media, it is not out of place to examine for adenoids, since they so largely increase the chances of this complication. On the other hand, when our attention is directed first to trouble with the ear, adenoids should invariably be looked for and removed, if we wish to cure the ear permanently. The following is a case showing adenoids complicated by otitis media:

Mary W., at six months of age, was slightly rachitic, but fairly nourished, and slowly gaining, in spite of a persistent rhinitis, which showed frequent exacerbations. A good sized mass of adenoids was found and its removal urged. The operation, however, was deferred from time to time. When seven months old, the baby developed a severe otitis media with discharging ears, followed by over a week of such suffering as to make a mastoid operation seem the probable outcome. When the baby finally regained the ground it had lost, and its hearing was partially restored, the family moved and were lost sight of.

But I have always felt that the early removal of the adenoids in this case would have averted the otitis media with its suffering and danger.

Since adenoids and otitis media are so closely associated, it may not be amiss, just here, to speak of the vague symptoms of otitis media in infants. At this age, we do not expect to find earache, which is a cardinal symptom later. All children are poor patients at locating pain. I have known a bright, ten years old girl, with severe otitis media, to run a high temperature for a week before she made any reference to pain in her ear. With babies, symptoms of pain are the exception, not the rule. Kerley found symptoms indicating pain absent in 70 per cent. of his cases of otitis media. There was only one symptom present in all of them, that was fever. Fever in a baby, without other distinct cause, should always suggest otitis media. This has been so impressed upon me, by happy and unhappy experiences, that I now habitually carry a head mirror and set of ear specula in my bag, for use in such cases, or in any inflammation of the upper air passages.

Since the symptoms of otitis media may be so few, let me stress the point this way: Any case of trouble in a baby, with a temperature, and on careful examination not showing sufficient cause elsewhere, is considered otitis media until disproved. This, so far, has been found a safe rule.

Digestive and nutritional disturbances may be caused in various ways. One is improper oxygenation, due to nasal obstruction. This causes great damage. Again, nutrition may be affected by direct interference with the taking of food. This comes about from one of two causes: First, from nasal obstruction, so that nursing the breast or the bottle is difficult, consequently the baby takes a smaller amount than he should. Or the same thing results from the adenoids causing pain on swallowing, which they may do, as above noted, even though the adenoids may not be large enough or, so situated, to have shown any obstructive symptoms whatever. In these ways, and by no means as infrequently as we might think, a baby that was developing satisfactorily, ceases growing and begins to go down. Constipation, from the small food intake, comes on with its accompanying symptoms of indigestion. In such a case, if time is wasted by trying to adjust milk formulæ, or to treat an obstinate cold, we only permit a bad case to grow worse. The results are grave and far-reaching. The remedy is speedy and certain. All that one need fear is that the diagnosis may not be made.

The treatment is, of course, removal of the adenoids at once. There may be a recurrence, and the younger the child the more apt is it to happen. However, this should not deter one from giving a baby the benefit of the operation, since it is simple and practically free from danger. While the harmful results of leaving adenoids alone, or employing only paliative treatment, may be disastrous to health and even life.

The following case shows the adenoids affecting nutrition: Mary D., when six months old, was slightly under height and weight, but rosy and plump, and the picture of health. Moreover, she slept peacefully the whole night through, and all day she was happy and contented. She had, from birth, been partly breast and partly bottle fed. Much care had been exercised in gradually increasing the strength and quantity of the cow's milk. She was doing perfectly on the mixture at the above age. When seven months old, she was brought to the office for treatment. The mother expressed the fear that the milk was too strong, because the baby had recently grown cross and irritable by day, and at night cried out frequently, and slept little. She nursed both the breast and the bottle with great indifference, taking only a small part of her usual amount of food. There was no vomiting and no fever, the bowels were slightly constipated. The mother had observed no snoring or mouth breathing. Examination showed a slight nasal discharge, chest and abdomen were negative. A digital examination of the naso-pharynx showed a moderate sized mass of adenoids. Removal of the adenoids was followed by the immediate cessation of all symptoms. The baby slept well the first night, and went back at once to her full allowance of food which she took with a relish. There has been no return of symptoms. She is now over a year old, up to the normal in size and weight; is full of life and good spirits by day, and rests perfectly at night.

I trust that I have made out such a case against adenoids in infancy, that they will not be overlooked in the babies which come under your care.

BANEFUL EFFECTS OF ADENOIDS IN INFANCY AND CHILDHOOD*

By

H. H. BRIGGS, M.D.

Asheville, N. C.

A comprehensive review of this subject of adenoids in infancy, as stated by the essayist would require more time than is at our disposal. He has treated carefully the more salient points and so thoroughly that I shall mention them only to commend what he has said and endeavor, if possible, to further impress you with their truth and importance.

I wonder if any one here is skeptical as to the existence of adenoids in infants, at birth, if you please. Fifteen years ago we wondered at adenoids in children of ten to fifteen years of age, and even now a great many of the profession ignore their existence, allowing children in their family practice to grow up with mouth breathing, with the typical adenoid face, protrusion of the teeth of the upper jaw, with narrow deep palatal arch, pigeon breast, round shoulders; in fact, the entire role of symptoms pathonomonic of this malady. Careful observers, however, are cognizant of this menace to the physical, mental and moral welfare of the child.

The essayist is to be congratulated, it seems to me, in being, so far as I know, the first one in this Society to call attention to the existence of adenoids in infancy and their danger.

Some of the classic symptoms of adenoids as seen in children may be absent or rather undeveloped in the babe. The adenoid face, as above described, has not had time to develop. There may not have been time for the incissors, if present, to protrude, and for the malformation of the arch of the palate; nor may the babe have acquired the ability to breathe through the mouth which it does not instinctively do. The malformation of chest and shoulders may also be in their incipiency. Acute otitis media or chronic catarrhal otitis media may not have manifested themselves and the membrana tympani may as yet be unretracted.

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*Opening discussion of paper by Dr. Lewis W. Elias on Adenoids in Infancy, read before the North Carolina State Medical Society, June 21, 1912.

Fretfulness, especially on nursing, or indication of pain during nursing or feeding should be carefully noted. Nasal discharge is most always due to adenoids and the associated condition of rhinitis. Otitis media in the babe is often a complication of adenoids and the accompanying pharyngitis, caused by an extention of inflammation along the eustachian tube into the middle ear. This sequela is the more apt to occur in the exanthemeta, whooping cough, colds and influenza. So we may say that otitis media serosa and purulenta are usually symptoms of adenoids, for they are, in a great majority of cases, results of the adenoid by its mechanical and inflammatory interference with the eustachian tube.

Painful deglutition mentioned by the essayist is due to the rarification and condensation of air in the naso-pharynx during the act of swallowing. In this act the soft palate is held in opposition to the posterior pharyngeal wall and moves upward and downward much as does a piston in a cylinder. In this way the capacity of the epipharynx is first diminished and afterwards increased by this motion of the palate. In the normal pharynx there is no disturbance of air pressure in the pharynx as a result of this motion, for the patency of the nostrils allows the air in the epipharynx to communicate freely with the external air and thus the air pressure in the pharynx is maintained constant. But if an adenoid and the accompanying nasal secretion blocks the nose, then there is alternately increased and diminished air pressure in the epipharynx, eustachian tubes and middle ear. This is easily demonstrated on oneself by holding the nose when swallowing. The membrana tympani is drawn in and held in by the excessive atmospheric pressure in the external auditory canal until the rarified air in the middle ear and eustachian tubes is augmented by a rush of air from the pharynx which the next act of swallowing without holding the nose will facilitate. This suction causes hyperemia, inflammation, excessive secretion and extreme sensitiveness and pain, often to the extent that the babe refuses to take nourishment. Freeing the nostrils temporarily with a saline douche will frequently give relief for many hours.

The baneful effect upon nutrition and the general condition of the child is well cited by the essayist. The fact of the increased danger of contracting acute infectious diseases due to such diseased pharynx, so receptive to infectious germs and for transmitting the same into the lymphatics should prompt us to a sense of our duty as clinicians.

The definite determination of adenoids in the babe is most difficult. Under one or two years of age it is not advisable to insert the tip of the index finger into the epipharynx, except as a last resort. The best and safest way to make the examination is with artificial light, a head and post nasal mirror, if a dark room is at hand; but if not, natural light, perferably sunlight, may be used. The child wrapped in a sheet to confine his hands is held in front of you by an assistant who also confines the child's legs and holds the face firmly. A second assistant places a tongue compressor far back on the tongue, giving plenty of illumination of the pharynx. A retractor in the left hand draws the soft palate forward, giving plenty of space for the small post nasal mirror to reflect a clear view of the entire vault of the pharynx. Two or three attempts may be necessary to obtain a clear view.

The time to operate for adenoids is as soon as possible after the diagnosis is made. The usual preparation of the patient for anaesthesia operations is necessary. Ether is the best anaesthetic, considering the thoroughness of the operation, and the safety of the patient. Nitrous oxide gas is the next choice, the disadvantage being the lack of thorough relaxation of the jaws and throat as well as a constant degree of anaesthesia. The prone position of the patient I prefer to the semi-prone, both for the convenience of the operator and anaesthetist, and especially because with it the blood may be prevented from flowing into the larynx. The degree of anaesthesia should be just to the point of thorough relaxation of the muscles generally, remembering that the reflexes of the larynx are about the last to become abolished, and that to obtain this degree may in some cases mean too profound anaesthesia for safety. I stand on the left side of the patient, the mouth gag being placed on the right side and entrusted to the anaesthetist. If an assistant is desired, he should stand to the surgeon's right. It is well to palpate the adenoid or view it with a mirror unless you are sure of its size and location in order to select the proper size curette. The Gottstein being the proper instrument for this purpose.

The tongue should be depressed with a tongue depressor held in the left hand, the curette inserted behind the soft palate, the handle depressed until you feel the instrument impinge against the vomer to be sure you get in front of and above any portion of the adenoid high up on the vault. The curette is now pressed firmly upward, backward and then downward, using a rocking motion from side to side if you wish, serving the mass from its attachment. If it hangs by any shreds as it tends to do, it may be removed with forceps after it has fallen into the oro-pharynx. The curette should then be reinserted and turned to the side so as to press along the fossa of Rosenmueller of each side, being careful not to injure the mouth of the eustachian tube, yet being sure any attachment of the adenoid to the latter which may later interfere with the normal function of the tube, causing tinnitus and deafness, is cleared away. As soon as the mass is removed a gauze sponge, such as is used in abdominal surgery, carried in a long forceps, and pressed firmly against the soft palate, causing its complete closure against the posterior pharyngeal wall, will prevent any bleeding into the mouth and throat. The blood will rise in the nostril and overflow where you may observe its amount and, if excessive, can be completely stopped by holding the nostrils between the fingers, the clot being afterwards removed from the epipharynx. All bleeding should cease before the patient is removed from the operating table. The child is usually playful the next day and may be allowed to sit up.

The temperature, odor to the breath, and the general condition, should be carefully noted for a few days to detect any evidence of infection caused by decomposing clots or tags of adenoid left in the epipharynx.

The operation properly done the child rapidly recovers and shows physically and mentally evidences amply justifying the wise and humane interference in his behalf.

"WHAT IS EPILEPSY?"*

BY

CARL D. CAMP, M.D.
Ann Harbor, Mich.

An excuse for asking the question contained in the title of this paper will be apparent to anyone who has studied the voluminous literature on epilepsy which dates from the earliest medical writings, or who has been confronted with cases of the disease. There is a necessity for a definition which shall be really definite and concise, yet include all cases of epilepsy and exclude all else. I suppose that most medical men of experience have fairly definite ideas on the subject; the real difficulty consists in putting these ideas into words and including in such a definition those rarer types, though well recognized such as psychic epilepsy, Jacksonian epilepsy, sensory and sensorial epilepsy and epileptic equivalents, so-called.

Necessity of Proper Definition

The medical and especially medico-legal importance of such a definition is obvious. In reference to the former, it is unnecessary to call the attention of medical men to the great desirability of an accurate diagnosis as a preliminary to treatment; as regards the medico-legal and social aspect of the question we may call attention: first, to the frequency in which epilepsy is brought forward as an excuse for crime; second, to the fact that, at a recent meeting of the American Neurological Association, the president, Dr. Stedman, in his address advocated that all employees of transportation services in positions of responsibility should be certified as free from this disease for reasons that are apparent; third, that with the passage of employers' liability laws in many states it will be necessary that employers more carefully guard against accidents that may take place in their mills or factories through the presence of epileptics; and, finally to the proposed laws to sterilize epileptics in the interest of eugenics which also necessitates a careful consideration of this problem.

First we must consider whether epilepsy is a disease, *sui generis*, or a morbid condition, the result of various factors. It is my opinion that it is the latter. I hold this opinion not only

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as the result of clinical observation and pathological study, but also because I believe that by taking such an attitude we open up a field for further investigation which will be most fertile in prophylactic and therapeutic results, which, after all is the aim and end of medical endeavor.

Essential Characteristics of Epilepsy

Authorities differ widely as to what is the essential characteristic of epilepsy. By some the unconsciousness is regarded as the principal phenomenon, the convulsive movements, etc., as epiphenomena. Such a position would exclude many of the cases of so-called Jacksonian epilepsies and also would not include those patients undoubtedly epileptic who suffer only from the aura or partial epilepsies. On the other hand, instances of recurring attacks of unconsciousness are not necessarily epileptic in origin. The definition of Turner, that "epilepsy is a condition characterized by recurring attacks of unconsciousness, frequently accompanied by convulsive and other phenomena," will not answer. In this connection I might refer to a paper by Friedman on "An Investigation of the Non-epileptic Attacks of Unconsciousness in Childhood," to narcolepsy, first described by Gelineau, and of which I have reported a striking case and observed several others; to hysterical attacks, and to the psychasthenic attacks simulating epilepsy, described by Spiller and others, all instances of attacks of unconsciousness non-epileptic in character. Equally objectionable is the definition which gives first importance to the convulsive phenomena, and on much the same grounds; it does not include all cases nor does it exclude convulsions non-epileptic.

It has been determined in recent years by clinical observations and by experiment that the phenomena which we consider essentially epileptic, *i. e.*, a certain character of convulsions, certain types of sensory disturbance and disturbance of consciousness can be produced by irritation of the cerebral cortex, the character of the result depending on the part of the cortex irritated rather than on the kind of irritation. Actually, phenomena generally recognized as truly epileptic are only such as might result from irritated conditions of a part or parts of the cerebral cortex and entirely without any voluntary control. It is true that some epileptics can abort attacks by resorting to various devices, such as drawing a tight band around the extremity in which there is an aura, taking a deep breath, etc., but the result is the result of the act not the simple result of the will of the patient. The patient may be fully conscious, but has no power to control, voluntarily, in the slightest degree, the course of events making up the attack. It may be motor, sensory, affecting the special senses as an hallucination, or the higher cortical centers leading to so-called psychic epilepsy, automatism, epileptic furor, narcolepsy and the like. The really essential feature of the epileptic attack is the absence of any mental influence in the causation of the condition. In most epileptics the phenomena of convulsions are primitive, flexion and extension movements, etc.; in some, however, complicated acts are carried out automatically. It should be remembered, however, that even the most complicated acts which are truly epileptic are automatic, purposeless and motiveless; that an epileptic commits a crime is no reason for considering the epilepsy as an excuse unless it can be shown that in doing this act, the criminal acted in a manner similar to that which would be taken by a mechanical automaton devoid of feeling or reason.

Definition

A definition which I suggest tentatively is: "Epilepsy is a morbid condition characterized by attacks of the phenomena of abnormal hyperfunction of some or all parts of the cerebral cortex, frequently accompanied by unconsciousness and never under the control of the will or volition."

It should not be understood that a disease of the cortex is present or that there would be any demonstrable changes there, and it is for this reason that I object to the definition of Dr. M. A. Starr, that "epilepsy is a disease of the brain characterized by attacks." We have no definite evidence that the brain is diseased in all cases; in fact, pathological studies show that demonstrable organic changes may be entirely absent from the cerebral cortex of epileptics. It follows from Starr's definition, that the prognosis is hopeless and his clinical experience reflects this attitude. It is the *phenomena* of abnormal hyperfunction that we are sure of; even the question whether abnormal hyperfunction exists or not is certain. This we know: mechanical, electrical or chemical stimulation of the cerebral cortex produces certain characteristic phenomena depending on the part stimulated and these phenomena, not under the control of the will, are similar to the phenomena of an epileptic attack.

Etiology

There is a general custom of dividing epilepsies into two classes: idiopathic and symptomatic; in my opinion such a division is pernicious and reminiscent of the days when epilepsy was regarded as demoniacal possession. Undoubtedly there are individuals who have epileptic attacks without demonstrable cause or in whom the apparent cause is such that it would not affect the average person in such a manner, but this constitutional tendency to convulsive seizures, an exaggeration of a normal cerebral function, cannot be called epilepsy until it is made manifest by seizures and the seizures have a cause. It would seem most probable that the apparent hyperirritability of the cortex was in reality a normal irritability with a deficient inhibition, and that this lack of the inhibition may be due to a lack of development of the inhibitory mechanism, which is the last and most highly developed part of the brain, or to an impairment of this inhibitory mechanism by disease, toxins, etc.

The statistics as to the heredity of epilepsy vary widely with different authors. As a rule, the more diligent the physician in looking for the cause, the lower the percentage of idiopathic and hereditary cases becomes. The mass of statistics collected by observers medically untrained is almost totally valueless.

In my opinion epilepsy depends on a change in the normal relation of irritability and inhibition in some or all parts of the cerebral cortex, the irritability being relatively increased. This change may be more or less permanent as the result of some congenital defect, injury or disease, and then any slight toxic or reflex cause produces an epileptic attack or the toxic or reflex conditions may, of themselves, be so pronounced that they bring about this change. The list of these causes is long, many of them amenable to treatment. We have but scratched the surface in our investigations of the bodily metabolism and the mechanism of the reflex activities of the nervous system. It behooves us, therefore, to regard every case as a great opportunity to cast some light on these problems and to confer a lasting benefit on the patient.

I find that the causes of epilepsy may be classified as follows:

A few cases in which the condition, *i. e.*, a lack of development of cortical inhibition, is hereditary. In these cases the heredity follows the Mendelian law, there are usually other defects present, and the attacks are brought on apparently by the normal physiologic processes of the patient.

In a much larger number of cases, the disease, apparently hereditary, is in reality a congenital cerebral defect due to syphilis or to some habit or condition of the parent which impairs the development or nutrition of the brain of the offspring. These cases do not follow the Mendelian law, are not hereditary in a true sense of the word but congenital, although the attacks result from banal causes. Some of these patients may be successfully treated; it depends on the degree and kind of cerebral injury.

Another class are those who have brains damaged by injuries or disease at birth or afterwards. They are in practically the same condition as those in the previous class; their cure depends on a recognition of the causal factor and its removability by medical or surgical means. The effects of injuries, infectious diseases or chronic circulatory changes on the brain are productive of the same condition in adults and constitute still another class of cases; the treatment and prognosis would be the same, however, as if it occurred in infancy, namely, the discovery of the cause and its removal if possible. The fact that the simple disturbances in cerebral circulation may bring on epileptic attacks has been demonstrated experimentally in animals. I have seen a number of epileptics in which I have had good evidence for the belief that valvular heart disease was the cause, and the occurrence of epileptic attacks in connection with "heart block" is frequently described.

Another class of cases are those due to a toxemia of some kind or kinds. No one, so far as I know, has ever demonstrated a toxin causing epilepsy, but many cases have been observed in which the elimination of a certain toxic factor or the correction of certain metabolic errors has definitely stopped the attacks. Such a case, for instance, as one in my practice in which bromids, diet, etc., and general hygienic measures met with poor success. but in which the attacks ceased as soon as the patient began taking an enema every other day. I have observed several cases in which attacks were stopped by the adoption of a purin free diet, and so on. Whether in these cases the toxin is a changed internal secretion, or some inorganic substance in the blood, or whether the attack is an expression of so-called anaphylaxis, is unknown. All such theories have their advocates, but definite proof of the nature of the toxin is lacking. All we know is that a toxic substance may act on a normal brain, and still more on a damaged one, to produce epileptic attacks, and that we can in some cases remove this factor and cause the attacks to cease. Such cases as those reported by Meyers, of epilepsy in relation to thyroid disease are very suggestive in this connection.

The last class of cases to which I call attention are those called reflex. A long time ago Brown-Sequard showed injuries to the spinal cord in animals produced in those animals epileptic attacks, later on. Clinical observations show that epileptic attacks may be caused in man by the same factor. Furthermore, it has been shown that diseases or injuries in various parts of the body may produce, apparently, the same results, and the attacks cease when these are properly cared for. For instance, the observation of Randall on otitic epilepsy, *i. e.*, epileptic attacks caused by inflammations of the middle ear, or the impaction of foreign bodies in the external ear, and ceasing on the removal of the cause. Numerous examples of epilepsy due to eye-strain, irritating conditions in the nose, impacted and unerupted teeth and other sources of reflex irritation are on record.

These reflex causes are not confined to conditions about the head, as witness the case reported by Berger of epileptic seizures from appendicitis, and Axtell's "Acute Angulation and Flexure of the Sigmoid as a Causative Factor in Epilepsy."

In conclusion, I suggest that the time has come when a consensus of medical opinion should furnish a definition of epilepsy that should be clear and comprehensive, yet go no further than the observed facts will warrant. This is necessary for social and medico-legal reasons, but is also necessary in order that we may understand that epilepsy is not a "*morbus caducussive sacer*" or "*morbus divinus*," but a morbid condition which it is distinctly "up to the doctor" to treat.

INFECTIOUS DIARRHEA IN INFANCY AND CHILDHOOD*

By

JOHN B. MANNING, M.D.

Seattle, Wash.

Predominating Factors in Etiology.—Infectious diarrhea implys a micro-organism as the exciting cause; most frequently the dysenteric bacillus. This nomenclature Dunn uses in his classification of summer diarrhea, the English pediatricians speak of the infective diarrhea and Finklestein separates that group of cases where the symptoms indicate that there is some agent other than the food ingested active as the cause of the disorder from those in which all symptoms point simply to a disturbance in the process of digestion. There are a group of severe diarrheal manifestations considered under this heading whose etiology is well known, the Shiga or Flexner and the streptococcus infection (Escherich). Other types present the same clinical appearance. It is practically impossible to separate these groups without bacteriologic examination of the stool. I am considering this subject however from the point of view of one familiar with the clinical rather than the bacteriologic side of these infections. No doubt other organisms than these mentioned are active in such processes. Contributary causes in this disease are excessive heat. Heat plays a double role in lowering the digestive substances and allows increased opportunity for contamination and spoiling of milk. This factor however is much less active in the coast cities of the Pacific Northwest than in large Eastern cities. In addition to milk, water born epidemics of bacillary dysentary in infancy is now recognized. Sedgwick and MacNutt and more recently McLaughlin have investigated this field.

Clinical Appearance.—It starts as an acute indigestion in which the local resistance is diminished by irritation or injury to the intestinal wall or by fermenting food. If the pathologic organisms are now present or introduced into the intestine all the opportunities for infection of the tissues are present and infection occurs at once causing lesions and various forms of ileo-colitis. This condition is characterized by persistent fever, early appearance of excessive mucus and blood in the movements, with or without curds, or evidence of fermentation and with a sudden marked toxemia. The clinical aspect of this disease depends then on a bacteriologic infection of the intestinal mucous membrane and invasion of toxins with the accompanying nervous phenomena. Apathy, restlessness and fretfulness are seen, convulsions rarely. Signs of meningeal irritation, twitchings, spasms and retraction of the neck are occasionally found. Extremities are cold, cyanotic and reflexes retarded.

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Differentiation.—When the meningismus is marked lumbar puncture may have to be resorted to in order to eliminate cerebrospinal meningitis. The presence of blood and mucus, together with rapid prostration, should always suggest intussusception. The abdominal examination will however eliminate the question of intestinal obstruction.

Treatment.—The single most distressing symptom during the acute stage is the toxemia which taxes our utmost ingenuity and resources to guide the complaint to a successful issue. The prostration which results from the toxemia was present in 147 cases out of 178 included in Young's series. The mortality was 50 per cent. There is no diarrhea in infancy and early childhood where the toxemia is so profound and quick to act as in this disease. Equable body temperature and the avoidance of chill is essential at this time, as the natural sensitiveness to body temperature is heightened and the convalescence may be prolonged by the exposure and what is infinitely worse with such a suitable media on which to flourish the entire course may be interrupted by a terminal broncho-pneumonia. Here as in every other sort of diarrhea in infancy the breast fed baby is rarely involved. The picture of an infant, prostrate, pale, with pinched face, with frequent movements containing mucus, curds and blood associated with an elevation of temperature usually ranging from 100 to 102 is a sight we all have seen and is a condition which we approach with a feeling of unusual responsibility. Changes occur so rapidly in this acute condition that to see a case but once or twice a day is to invite trouble. Three times a day is not any too often to see such a case. Vomiting is not the rule although refusal of liquids is common. Our endeavors are directed toward combating first the toxemia, and consist of the free use of salines and water together with the initial cathartics. By mouth all the water consistent without nausea is given. Lavage is important where gastric symptoms are prominent. Cleansing saline enemata should be given not oftener than two times a day and reduced to one or none if there is any indication of collapse and omitted when the irrigations continue to come away clear. As the object here is to mechanically clear the bowel enough saline should be given to get a clear solution returning. Saline to be retained is given per rectum at four to six hour intervals or by continuous drop irrigation, *i. e.*, seepage, can be utilized except where as isoften the case tenesmus occurs and the introduction of the tube produces painful peristalsis. For the drop method per rectum I like the drop attachment set number two made by Mienecke & Company, New York. When the infant has subnormal temperature and is in collapse seepage is best omitted unless unusual facilities prevail which make possible the assurance that the saline reaches the rectum at somewhere near the desired temperature. Saline given under the breast during the acute stage of this disease is a sure and effective means of increasing the body fluid. For this purpose the Fowler's or the Kelly's infusion apparatus works better than the large glass syringe with asbestos packing. One-half to three ounces every four hours can be given in this manner during the first twenty-four hours. I have never seen local infection as a result of this procedure.

Drugs.—The initial cathartic should always be given. Bismuth and opium during the acute stage are contraindicated in this condition. Opium especially is dangerous, its action is to diminish the number of movements by depressing peristalis and not by relieving the cause of the increased peristalsis which is nature's way of getting rid of poisonous intestinal contents. There is however one exception to this rule when the movements are associated with pain and tenesmus which prevents the patient from getting proper rest. Close observation of the effect of such a change in relation to toxemia is essential. I recall a boy of six years emaciated to the last degree with tenesmus so severe that a large prolapse occurred quiet down under rectal suppositories of opium and get the first real rest for several days. Salol and other intestinal antiseptics are of little value.

Drugs early are not as a rule well borne and are apt to excite nausea and interfere with the digestion of liquids which are of much more importance. Bromides may be necessary to control the nervous symptoms.

Complications.—The colon bacillus invades the denuded mucous membrane of the bowels and by a hematogenous route or direct extension through the urethra invades the genito-urinary tract and in a short space of time an active process is making headway which adds its vicious part in intensifying the toxemia without directing any especial attention to those regions to indicate the severity of the infection other than perhaps that the urine is cloudy. It is, therefore, important at the earliest possible time to obtain enough urine for sedimentation, which is only a few c.c. This condition taken early clears up early. Potassium citrate should be given until the focus of infection in the gastro-intestinal tract has healed as indicated by the improved character of the movements as the tendency to lighting up in the genito-urinary tract is persistent until such improvement has taken place in the bowel. Potassium citrate is well borne in plain water or syrup of lemon. Other not infrequent complications are otitis media and bronchitis. Rolleston calls attention to purpura which occurred in 11 out of 100 cases in his series with a distribution more particularly over the chest and abdomen, in the severe cases. This he regards as an extremely bad indication in prognosis. I have seen this in cases which have recovered. It apparently bears some definite relation to the severity of the toxemia and edema which according to Fairbanks and Dewolf may accompany it.

Stimulants.—Are indicated for supportive treatment, but when the toxemia fails to yield, the supportive treatment with stimulants cannot be expected to accomplish much of anything.

Feeding.—Much attention is now being given to the relation of the intestinal flora to food. Escherich as far back as 1886 systemically investigated the fecal flora and since then the literature has been enriched by Tissier and Moro. More recently in this country Kendall has investigated this field and there has been some attempt made to make his experimentation on the bacteriologic findings furnish us with a guide for the selection of the kind of food to be used. Some kinds of bacteria are said to thrive on proteids and others on carbohydrates. Unfortunately bacteriologic investigation of this sort is only practical in hospitals with a well equipped laboratory with an expert pathologist. Such investigations consume too much time for a physician to undertake them personally, even if he has the necessary experience and facilities, while the private laboratory is too expensive. The feeding problem in this type of diarrhea still confronts us as a most perplexing problem, the duration is usually with convalescence 21 days. How little has been accomplished in this field of therapeutics in spite of the voluminous literature on the subject to prevent that reduction in the resistance which takes place during the acute stage. There is urgent need of a method of treatment which would conserve the strength of the patient and improve the intestinal condition. If Finklestein's and Meyer's "Eiweiss Milk" would accomplish this the preparation is so difficult to make outside of a hospital that for practical purposes in private practice it would be excluded. Kendell states that the underlying principle of the activity of the dysenteric bacillus is that the organism attacks fermentable carbohydrates in preference to protein but when the protein products are attacked toxic putrefactive products result. It is these protein decomposition products which are harmful and can be prevented upon the addition to sugar, the remedy bacteriologically speaking is to an excess of sugar restoring the normal dextrose contents of the blood. On this principle have the nutrient subcutaneous infusions of 2.5 per cent. chemically pure dextrose been given during the toxic stage of this disease. Bowditch in his series was of the opinion that dextrose infusions were an improvement. To some extent the use of maltose in the form of Mead, Johnson and Company's dextrin-maltose and Mellen's Food have been used to add to the boiled water and barley water mixtures during the acute stage based on this principle. In general, however, the bacteriologic study of movements have not added materially to our knowledge of treatment. The observation of the character of the movement, the disappearance of the blood, the changing from green to white mucus, later, the absence of the mucus and the condition of the patient are guides to the length of time of the administration of any food or its increase, and each case still continues a problem in itself. During the acute stage boiled water 24 to 32 ounces in 24 hours to which is added lactose, or maltose, or dextrin-maltose. Milk is withdrawn for about two weeks. Cereal water with whey and weak chicken broth are cautiously added later. These are gradually replaced during convalescence by digestable forms of milk products, whey, fat free milk, milk dilutions with cereal water, buttermilk, whole milk inoculated with lactic acid bacilli. In older children during convalescence junket, gruel, broths. Leopold writes me at this stage he uses large amounts of cream cheese. When tolerance to whole milk is once established the return to normal nutrition is rapid.

Serum.—It has been impossible to estimate the real value of the anti-dysenteric serum in these cases owing to the difficulty of proving the identity of the dysenteric bacillus and the tendency to recovery sometimes under other methods of treatment. Dunn and Fisher have used it in some caseswith apparent benefit. The general feeling I think however is that it has not accomplished what was expected of it.

Care of Stool.—When there are other babies in the family one cannot make any mistake in impressing on all attendants that care must be exercised to prevent the spread by contaminating nipples. A large pad of absorbent cotton covered with a layer of gauze picks up the discharges well. These can be burned and the entire contents destroyed.

604 Cobb Bldg

ANCIENT VS. MODERN VIEWS ANENT PERTUSSIS

BY

FRANK K. GREEN, Ph.D., M.D.

Louisville, Ky.

From a perusal of the contributions of certain bacteriologists, et. al., published in current medical literature, one might readily infer that many of the presumably infective disorders which afflict the *genus homo* are to be positively regarded as of recent origin and discovery; whereas, historical research demonstrates that the minutiæ concerning the majority of such maladies with the possible exception of the bacteriological aspects thereof, were quite as well known to ancient as to modern observers.

The frequently encountered infective disorder designated as pertussis (per=excess+tussis=cough), whooping cough, tussis convulsiva, t. ferina, t. quinta, t. stomachalis, t. strangulans; Fr. coqueluche, Gr. keuchhusten, Scot. kinkhoast, etc., is no exception to the rule. Modern writers evidently overlook the fact that this malady was recognized and more or less accurately understood by Hippocrates (about 450 B. C.), although it appears the first distinct and comprehensive description thereof is accredited to a French author many years later, viz., Mezeray, A. D., 1414. Moreover, in describing this as well as numerous other physical disorders, barring mention of the experimental and speculative bacteriological findings, the compilers of the latest medical text books merely reproduce older literature, as may be readily appreciated by comparing their descriptions with the following excerpts from authoratative works published nearly one hundred years ago.

Pertussis is a convulsive cough, interrupted by a full and sonorous inspiration, returning in paroxysms that are usually terminated by vomiting or expectoration. In the first stage it may be considered a febrile disease. Children are most commonly the subjects of the disorder which seems to depend upon a specific contagion, and affects the individual generally but once. After accession of the malady the paroxysms of coughing are often repeated without evident cause. In many cases the contagion may be considered as only giving the predisposition, and the frequency of the paroxysms may depend upon various exciting causes, such as violent exercise, ingestion of a full meal or the eating of food difficult to be digested, irritation of the lungs by dust, smoke, or disagreeable odors; "emotions of the mind" may likewise prove an exciting cause!

Pertussis often prevails epidemically, but appears uninfluenced by any particular season. However, it is milder in warm than in cold climates, and is more severe in this country during autumn and winter than in spring and summer. "It arises generally from contagion, it is true; still, it must be allowed that there is a principle independent of contagion capable of producing the complaint, and that this principle undoubtedly exists in the atmosphere which it pervades to a certain extent; but what it is, and how formed, remains a curious subject for physical research." The proximate or immediate cause seems to be a viscid matter of phlegm lodged upon the bronchiæ trachea, and fauces, which "sticks so close" as to be expectorated with the greatest difficulty.

There is usually first noted an oppression of breathing, some degree of thirst, a quick pulse, and other slight febrile symptoms, succeeded by hoarseness, cough, and difficulty of expectoration. These symptoms continue a fortnight or more, when the disease assumes its peculiar and characteristic form, *i. e.*, the cough becomes convulsive and is attended with a peculiar whooping sound. When sonorous inspirations have taken place coughing is renewed and continues until either a quantity of mucus is "thrown up" from the lungs, or the contents of the stomach are evacuated by vomiting. The paroxysm being thus terminated the patient remains free for some time, and if the attack has been severe he seems much fatigued, makes quick inspirations, and is rather faint. At first expectoration is slight and consists of thin mucus, and so long as this obtains the coughing spells are frequent and of considerable duration; but on the expectoration becoming free, the paroxysms are shorter and less frequent. Because of the violent coughing the free transmission of blood through the lungs is interrupted, likewise free return of blood from the head, which produces that turgescence and suffusion of the face commonly attending an attack, and in some instances brings on hemorrhage either from the nose or ears. After reaching its height the disease usually continues some weeks longer, then recedes gradually. In some cases, however, it is protracted for several months. Although the disorder often proves tedious (and when not entirely removed may return with violence on any fresh exposure to cold), it is nevertheless seldom fatal except to very young children who are always likely to suffer more severely than those older, *i. e.*, the danger seems in proportion to the youth of the person, the degree of fever and difficulty of breathing which accompany the disease, and the state of debility which prevails. It has been known to terminate in apoplexy and suffocation, and to lay the foundation for asthma and phthisis pulmonalis. If the paroxysms are terminated by vomiting, it may be regarded as a favorable symptom, as may likewise free expectoration or slight hemorrhage from the nose or ears!

The malady usually commences with symptoms of ordinary catarrh. The patient at first experiences some degree of lassitude, headache, sneezing, slight hoarseness, and occasional oppression of breathing. Sleep is generally disturbed by dreams and sudden starts; the appetite becomes weak, the bowels torpid, and the pulse slightly febrile toward evening. For the first two or three weeks "the cough is dry and ringing," the paroxysms being short and free from that peculiar sound called whooping. The disease then begins to assume more of a convulsive or spasmodic character; the paroxysms occur more frequently and are of longer duration; inspiration during a paroxysm is extremely difficult, slow and stridulous, and attended with a sense of obstruction or spasmodic stricture of the glottis, rendering the paroxysms distressingly suffocative and convulsive. The approach of a paroxysm is generally announced by a peculiar sensation of tightness in the chest, and titillation in the larynx and precordia. In some instances the paroxysm is over in less than half a minute; in others it persists five to six minutes or even longer, always terminated by the discharge of a large quantity of viscid mucus; and the patient frequently experiences pain in the chest immediately after the paroxysm has subsided. In many cases the cough continues until vomiting supervenes, when it is immediately arrested and the patient feels greatly relieved. So violent in some instances is the attack of coughing that it induces a state of partial insensibility, and a most distressing sense of impending suffocation. Occasionally the determination of blood to the head is so great during the paroxysm that "it bursts out from the nose and mouth;" and it is not uncommon for children to become convulsed in consequence of the cerebral compression from this cause. In this aggravated state the disease usually continues four to six weeks before it begins to abate; the declension is always gradual, continuing commonly two to four weeks.

While pertusiss occurs almost exclusively during childhood, it has been observed in persons over fifty years of age. It is highly contagious, and occurs almost universally in an epidemic form. Spring and autumn appear most favorable to its development, and it is during the wet and variable periods of these seasons that the disease is most likely to become dangerous from the pneumonic affections which atmospheric vicissitudes are so apt to produce! Considerable diversity occurs in the grade of violence which different epidemics assume, some being so mild that the disease is attended with but little difficulty and passes by numbers who are still susceptible thereto; at other times it manifests a violent and dangerous character, seizing upon every individual old or young who has not previously suffered therefrom!

Pertussis appears to have two distinct stages. The first lasts generally from ten days to three weeks, and is not different from ordinary catarrh; the second is distinguished by the peculiar convulsive cough in which a number of expirations are made with such violence and repeated in such quick succession that the patient seems almost in danger of suffocation. The face and neck are swollen and livid, the eyes protruded and full of tears. Sometimes "when the kink is unusually severe," blood is forced from the nose, ears, and even from the eyelids; and occasionally it ends without producing any discharge, in the complete exhaustion of the patient. The number of paroxysms occurring during a day varies much in different cases, according to the severity of the disease; and the violence of each is diminished in proportion to the freeness of expectoration. After the disease has continued at its height for two or three weeks, it begins to decline; the paroxysms become less frequent and violent, expectoration increases, the cough soon loses its peculiar characteristics, and finally wears away altogether, leaving the patient in perfect health. The disease is rare in adults and also in infants under two months. (Excerpted from text-books of about 1800.)

A more elaborate and impressive, but perhaps less understandable, description is later afforded by Tweedie (1842) which is reproduced rather more in detail:

Pertussis, which generally occurs once only during life, seems to combine several of the characters of inflammatory affections of the air passages with those of a nervous description, and from its occasional severity and frequent complication with other serious diseases, merits careful consideration. The uncomplicated form generally exhibits three stages: the first is inflammatory a bronchitic or catarrhal inflammation; the second is both inflammatory (or at least congestive) and nervous; the third is entirely nervous, although it may in some cases be complicated with alterations in the pulmonary structure.

The first stage commonly begins as an ordinary coryza, but there is more headache, languor, and often more febrile disturbance; these symptoms sometimes precede the cough, which, however, begins earlier than in an ordinary cold. The general symptoms vary greatly in degree, being in some instances severe, in others insufficient to require treatment. In the former the pectoral symptoms are also marked at first, there being soreness and oppression of the chest, dyspnea, and other indications of severe bronchitis. The cough at first is hard, short, and ringing, being apparently excited "by the irritation of a thin saline-tasted mucus in the glottis!"

The transition to the second stage, which commonly takes place in from four to eight days, is marked by the cough becoming paroxysmal and more violent in character. The tickling in the throat is less constant, but when it comes cannot be borne an instant and excites an uncontrolable cough consisting of many repeated violent expiratory efforts followed by a long inspiration which by the whooping or crowing noise often accompanying it may be known to be drawn through an imperfectly opened glottis. The whooping depends upon an undue irritability of the laryngeal and bronchial muscles, so that they do not relaxas usual during the act of taking breath. But this sonorous back draught is not always heard in this complaint, particularly if the subject be not very young; and, on the other hand, it often accompanies other severe kinds of cough in children in whom the aperture of the glottis is small and disposed to contract. This is farther illustrated by the result of auscultation. On applying the ear to the chest of a child during a fit of whooping cough, one is surprised to hear so little sound of respiration within the chest with all the violent external motions; and during the sonorous back draught there is scarcelyany sound of air entering the pulmonary tissue. This is to be ascribed to the continued contraction of the glottis and large bronchial tubes preventing the air from penetrating to the vesicular texture with sufficient force to produce the ordinary respiratory murmur; for in the convulsive cough of adults there is no obstructed whooping inspiration, but a full forcible one which is heard loudly in all parts of the chest! The other physical signs of pertussis do not differ from those of mild bronchitis; there being often variable sonorous, sibilant, and mucous rhonchi in the upper and middle parts of the chest. The fits of coughing generally terminate in the discharge of a thin glairy mucus; and such is the violence of the action of the abdominal muscles that the contents of the stomach are often forced up by it! The termination of the cough in vomiting is merely the result of the violence of the action which produces the cough; as soon as the muscular efforts have compressed the chest as far as it will yield, their force falls on the stomach, and in proportion as the cardiac orifice yields is the completeness of the act of vomiting! This disposition is increased by habit; and consequently as the disease advances the fits of cough often terminate more frequently and speedily by vomiting or retching. The violent and convulsive character of the cough is its most characteristic feature; the face and neck become red or purple, and turgid; the eyes are injected; the throat, chest, and abdomen are quite sore with straining, and the whole frame is so shaken that the child is obliged to lay hold of something to afford support and seems to be on the verge of suffocation. It is no wonder that with such straining the expectoration should be sometimes streaked with blood, or that blood should flow from the nose; yet this does not happen very often, but chiefly in the plethoric or in those predisposed to epistaxis, and, if not excessive, is salutary! No wonder, too, that convulsions, coma, and other cerebral affections, are sometimes induced in young and delicate subjects. At this time the violent paroxysms of cough sometimes cause mechanical injury of the apparatus of respiration and circulation; the air tubes and cells become partially dilated or ruptured, the passage of blood through the lungs is impeded, congestions are produced, the action of the heart is disordered, the foramen ovale may sometimes be reopened, giving rise to blue discoloration and edema of the surface, etc. At this period in severe cases also there is often remittent fever at night; and with it there may be combined the various inflammatory complications in the chest, head, and abdomen, which constitute the chief source of danger in these cases in pertussis! In slight cases there may be no fever, and little functional disturbance in the intevals of the cough; but the common presence of the sonorous and mucus rhoncus, particularly before and after the cough, and the mucous expectoration in which the cough generally terminates, indicate that in all cases it is still a bronchitic or catarrhal as well as a nervous affection; and in fact, "as this stage declines the expectoration generally assumes the more consistent and opaque form which characterize the concocted sputa of a terminating bronchitis!"

This change, which may occur from the third to the eighth week after commencement of the disease, marks its transition to the third or purely nervous stage. There is great variety in its severity in different subjects. In some the convulsive cough may only come on twice or thrice in the twenty-four hours, and cease in the course of a few days. In others it rapidly loses its convulsive character and subsides like a common cough. In the majority of instances, however, it retains its convulsive character to the last, but becomes less frequent in its attacks, and ceases from six to ten weeks from the commencement of the disease. Delicate nervous children often suffer long and severely in this last stage, which assumes somewhat the form of a chronic convulsive disease; and even after it has itself ceased, for a long time it gives its character to any fresh cough that may be contracted from other cause!

None of the recent text-books on diseases of children, so far as the writer is aware, gives a more comprehensive description of pertussis than afforded by the foregoing, much of the verbiage being copied literally from the works of older authors. Even the latest medical lexicographer (1911) presents nothing new in his definition of the malady under consideration, expect brief reference to the bacillus of Bordet and Gengou (1906) and the abdominal belt of Kilmer (1904), his description being:

Pertussis, an infectious specific disease, probably due to the short bacillus with rounded ends described in 1906 by Bordet and Gengou, chiefly affecting children, lasting six or eight weeks, rarely attacking the same person twice, and accompanied by a peculiar spasmodic cough and respiratory catarrh. The period of incubation is usually from three to four days. Three stages may be distinguished. The first or catarrhal stage is marked by catarrhal inflammation of the nose, throat, and bronchi, with or without fever, and a rather severe cough. The second stage begins in a week or two, and is marked by the peculiar paroxysmal cough, which consists of a series of short, rapid, explosive coughs, without any inspiration between them, and continuing until the patient's countenance is dark and swollen from venous congestion. This is followed by a deep inspiration, accompanied by a crowing or whooping sound The coughing may be repeated and is frequently followed by vomiting or hemorrhage. This stage lasts from two to eight weeks, and is followed by the third stage, which is marked by gradual amelioration. The treatment is chiefly hygienic and tonic; though medication should be directed against the nervous and catarrhal element of the disease. The use of an abdominal bandage is strongly to be recommended.

In speaking of treatment it will be noted the learned gentleman makes no mention of the method originated by Naegeli (1889) of pressing forward upon the lower jaw to control the paroxysms of coughing, nor is this feature included in any of the text-books to which the writer has access; in fact, if the writer be not mistaken, nearly every line of the definition in the medical lexicon of 1911 is copied *verbatim et literatim* from a descriptive dictionary published about half a century ago! And, excepting the two methods already mentioned (Naegeli, 1889, and Kilmer, 1904), it may be stated without fear of successful disputation that there has been no improvement in the treatment of pertussis during the last one hundred years! The sections on treatment in text-books of the present are practically reiterations of the works of older authors, and it has long since been the consensus of opinion that there is no rational or curative treatment of pertussis, that its management is purely empirical and experimental, that almost every drug in the pharmacopeia has at one time or another been recommended and locally or generally employed without appreciable curative effect.

However, during recent years some interesting and instructive work has been accomplished by various observers along bacteriologic, etiologic and diagnostic lines, a review of which may not be uninteresting even if possessed of no real scientific value. Search has been continuously prosecuted for the essential etiologic factor in pertussis, and as early as 1897 Cazaplewski and Heusel isolated and described a small, solid, non-motile, Gram negative bacterium similar to the influenza bacillus (but of larger size) which it was thought constituted the cause of the malady. Similar bacilli were mentioned in 1903 by Arnheim, Manicatide, and Jochmann and Krause; and Reyher for four years (prior to 1906) studied the sputa of pertussis patients and succeeded in isolating the bacilli described by Czaplewski and Jochmann, the larger, solid bacillus being always present. Later (1906) Bordet and Gengou isolated and described a bacillus which they claimed constituted the true micro-organism of pertussis! "It is a very small, ovoid bacterium,—which keeps its form and appearance in the culture as well as in the sputum, which is hardly colored (especially in the central parts) by methylene blue or toluidine, which does not form spores and is killed by a temperature of 131° F.,—which is found in great numbers in the sputum during early paroxysms of the cough, but as the disease progresses it becomes more rare." The authors stated that it possessed many features to distinguish it from the bacilli of Czaplewski, Manicatide, Jochmann and Krause, et. al., that it possessed the power to secrete poisonous toxines as shown by certain experiments, especially by intra-ocular injection in rabbits as a result of which the cornea became opaque and white. They also add that the bacillus was not agglutinated by serum of persons who never had the disease (or who had it many years before) while it was always agglutinated by serum from children convalescing from pertussis. Another argument presented was the intensity in this serum of the "sensitizing power, manifested by fixation of the alexin," that in the absence of the bacilli the serum left the alexin entirely free. Klimenko (1908) succeeded in cultivating the Bordet-Gengou bacillus from the catarrhal secretions of children with pertussis, and with it reproduced the disease in young dogs and in monkeys, afterward cultivating the bacillus again from the secretions of the animals. He found the bacillus in eighty out of seventy-six children in the first week of pertussis, while the findings were constantly negative in fifty healthy infants and patients with various other affections. The period of incubation in the experimental pertussis ranged from two to six days, and the duration of the disease averaged forty-eight days. Numerous other observers, American, English, Italian, etc., have also described bacilli isolated from the catarrhal secretions of pertussis patients, enumeration of which would unduly prolong this dissertation.

The clinical diagnosis of pertussis ordinarily presents no difficulty, but the importance of recognition at the earliest possible moment cannot be overestimated, since it is during the first few days that infection is more often than otherwise disseminated. Therefore, any means by which its early recognition may be determined is certainly worthy of careful investigation Numerous observations have been recorded during recent years concerning the value of blood examinations in pertussis and other infectious disorders. The first blood examinations in pertussis appear to have been made by Froehlich (1897) who studied about fifty cases. In a paper published a few years ago (1906) Churchill after reviewing the work of others, concludes:

1. A general leucocytosis is present in almost all cases of pertussis.
2. A lymphocytosis, *i. e.*, an increase in the number of lymphocytes, is found in about eighty-five per cent. of cases at some time during the course of the disease.
3. A lymphocytosis is found even more constantly during the early or catarrhal stage, over ninety per cent. showing the phenomenon at this time.
4. A lymphocytosis is found usually in those conditions difficult to distinguish from pertussis.
5. Therefore, the presence of a lymphocytosis in a child with a hard persistent cough is a factor of great diagnostic value; it is also of prophylactic importance inasmuch as it can be utilized to prevent the spread of the disease by leading to the prompt isolation of the patient.
6. The child's age must be taken into account in estimating the importance of the lymphocyte percentage.

Barach likewise emphasizes the distinct value of blood examination in the early diagnosis of pertussis, and describes the blood cycle as follows: There is at first leucocytosis with increase of all the forms; then a small cell lymphocytosis becomes conspicuous and continues to increase when the other forms have reached their limit. The large lymphocytes follow the course of the small ones, but they reach their greatest numbers after the small cells have reached theirs. During the stage of active lymphocytosis bi-lobed small lymphocytes are frequently seen as well as numerous degenerated large lymphocytes, especially the basket forms. Then comes the simultaneous falling of the leucocytosis and lymphocytosis, while the polynuclears begin to resume their normal proportion. A little later, the mast cells are observed more frequently, and an occasional myelocyte may be seen. While the leucocytosis and lymphocytosis continue to fall by lysis, and eosinophilia is noted; this continues for a variable time, after which the blood formula resumes its normal proportion. During this entire cycle the transitionals seem unaffected. Clinically, leucocytosis is present at about the time the child first coughs; as coughing goes on the leucocytosis increases and the lymphocytosis becomes marked. The height of leucocytosis is reached in the spasmodic stage, sometimes early, sometimes in the latter part, the sickest children showing the highest grade of leucocytosis. About the time that a marked improvement is noted in the child the leucocytosis has decreased, the polynuclears have increased and the eosinophilia is present, which continues for a variable time.

Some interesting data have also been presented by various writers concerning the pathology and symptomatology. It not infrequently happens that even serious nervous complications of pertussis are overlooked by the general pactitioner. In addition to convulsions there may develop psychoses, disorders of the cranial nerves, cerebral hemorrhage, implication of the peripheral nerves, neuroses, encephalitis, meningitis, degenerations of the spinal cord, etc. Neurath (1904) cited the pathologic findings in the brain and spinal cord of twenty-five cases of pertussis, and concluded that the inflammatory (meningeal) change was the cause of the meningeal and cerebral symptoms. A cell infiltration was found in the arachnoid, besides edema and small hemorrhages of the white substance. Rhein (1904) also recorded some unusual pathologic conditions in spastic diplegia of gradual development following pertussis in a child. Scattered throughout the cortex (especially in the para-central regions) were small hemorrhages, also destruction of the perivascular spaces which in many instances were crowded with round-cell infiltration. There was also evidence of descending degeneration in the motor tracts. In the peduncles, the pyramids, the internal capsule, and in the crossed pyramidal tracts of the spinal cord, the nerve fibres were degenerated.

After studying the reports of three cases of optic neuritis complicating pertussis found in the literature, and one which occurred in his own practice, Gamble (1903) arrived at the following conclusions:

1. Optic neuritis complicating pertussis occurs most frequently in females—four cases all girls.

2. It occurs with or without cerebral complications.
3. Vision may or may not be disturbed.
4. Prognosis as to sight good when no cerebral complications exist.
5. Optic neuritis may result from direct action of toxins of pertussis upon the nerve head.

Since there has never yet been evolved a method of treating pertussis, which may in any appreciable degree be regarded as permanently curative, and particularly since nothing new in relation thereto (barring the few exceptions hereinbefore noted) has been discovered during recent years, little comment thereon seems necessary. Feer (1908) claimed that fresh air, freedon from dust, and correct psychic treatment were indispensable in the management of pertussis, that by deep breathing older children could sometimes suppress an oncoming paroxysm. He regarded quinine useful in the first stage, with bromoform if a sedative be required, and codein when the attacks were severe; that somnolency and subsidence of expectoration contraindicated sedatives and demanded energetic stimulants. On the whole he agrees that the "treatment of pertussis is stiil a difficult matter, that there is yet no specific remedy, yet it is possible by dietetic measures and hydrotherapy with quinine and sedas tives, to influence the affection favorably," all of which has been reiterated many times during the last hundred year. Bradt (1910), ascribing the manifestations of pertussis to "a local process in the upper air passages," declared that by local applications (once or twice daily) to the naso-pharynx adequate relief might be procured, and suggested for the purpose iodine and phenol 0.5 parts, with 1.5 parts potassium iodide and 15 parts of glycerine in 100 parts of water. To combat the infective factor Zangger (1910) recommended "the old quinine treatment suggested by Buiz" (1868), using a one to two per cent. solution of quinine hydrochlorate in doses of two and one-half fluid drams three or four times daily diluted with milk or water. To influence the neurotic element simple hydropathic packs were advised. It was claimed by this treatment the convulsive stage was markedly shortened and the number of paroxysms reduced. Continuation of the quinine was advised for several weeks after cessation of the convulsive cough, as a general tonic, and to avoid relapse.

With respect to the maneuver suggested by Naegili (1889) and already mentioned, *i. e.*, pressing forward upon the lower jaw as a means of preventing paroxysms of coughing in pertussis. Caille (1910) remarked that it was possible to check an oncoming attack of spasmodic coughing by pressing forward the lower jaw, as would be done in a narcotized individual who was not breathing properly. Sobel (1903) followed this plan in ninety-six dispensary pertussis patients with only nine failures. The method appeared less efficacious in infants than older children, though in some quite young it acted remarkably well.

Kilmer (1904) claimed it was possible by employment of his abdominal belt to lessen the frequency and severity of the paroxysms in pertussis; moreover, that they rarely terminated in vomiting. Theoretically the belt "places the stomach in a splint supporting the abdominal walls and prevents that relaxation which comes from any disease which produces a distressing cough." Later (1907) the author detailed 550 examples of pertussis in which his belt had been utilized, the results being surprisingly good, *i. e.*, 87 per cent. of the patients were benefited. He described the belt as made of linen with a two inch strip of silk elastic inserted on either side which gave elasticity without adding materially to the weight, and by means of lacings at the back any degree of constriction could be maintained. The belt is worn over the undershirt or binder, the approximate width being: for infants four to five inches; for children five to eight inches. The length should be about three inches less than the circumference of the abdomen at the umbilicus. While the proper degree of constriction must be determined in each individual case, slight constriction is usually sufficient to produce moderation of cough and cessation of vomitins. However, if the symptoms continue, the belt should be slightly tightened. According to the author a sense of comfort is generaly expressed by children sufficiently old to make themselves understood. Other observers have reported excellent results from employment of the abdominal belt, or some modification thereof, suggested by Kilmer. However, the exact *modus operandi* by which favorable results are induced, has never apparently been adequately elucidated.

Contrary to the belief of the older writers, *i. e.*, that "pertussis is seldom fatal," it is now well known as one of the most dangerous of the infective disorders which inflicts the infantile *genus homo*, principally because of the serious complications and sequelæ which so frequently accompany or follow in its wake. It is true, however, that uncomplicated pertussis is ordinarily a trivial affair which entails no serious suffering or permanent disability to the patient.

It cannot be too frequently emphasized that hygienic, tonic, dietetic, hydropathic and out door treatment are of vastly more importance than the exhibition of drugs in the management of the disorder.

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SOCIETY TRANSACTIONS.

Transactions of the Twenty-Sixth Annual Meeting of the American Orthopedic Association, Atlantic City, May 30th to June 1st.

The Mechanical Treatment of Hip Disease.—Dr. George E. Packard, Denver, Col.: I believe that if sufficient mechanical treatment, in addition to proper hygienic measures, is instituted early in hip disease, a cure will many times take place with motion. Every means should be used in the early stages to effect such a result. Traction, fixation and protection from weight-bearing should be persisted in as long as there seems any possibility of obtaining such results. Early weight-bearing should not be allowed; as it favors ankylosis, absorption, and enlargement of the acetabulum. If stiffness persists after two years of treatment by traction, fixation and protection, and there seems to be little probability of recovery with motion and there is absolute freedom from sensativeness, then weight-bearing, with fixation to prevent flexion and adduction, is the treatment of choice. Undoubtedly ankylosis is to be desired in many cases as the best possible result for future comfort and permanent cure. Therefore, the treatment should not be one of routine, but selected according to the indications in each individual case.

Results in Hip Tuberculosis After Mechanical Treatment (Without Traction) and Hygiene.—Dr. Henry Ling Taylor, New York City: Seven patients treated by Phelps's brace are reported. Five children had their splints removed in the summer of 1910. All but one child had abscesses. They were all early cases, and of at least average severity. The average duration of the treatment to the time the splints were removed was three years. In the double case, moderate flexion has since been corrected; and two have had treatment for a weak knee. These two still use crutches; the others walk well without support. All the patients are now in good health; and in all, the abscesses are healed. In all but one, who has thirty degrees of motion, there is only slight motion at the hip joint. In all, the position of the leg is excellent. In none does the shortening exceed one inch, except in the two girls with weak knees. X-ray plates show more or less enlargement of the acetabulum, moderate erosion of the head (except in two), and the head in the acetabulum.

Discussion of Dr. Packard's and Dr. Taylor's Papers

Dr. R. W. Lovett, Boston, Mass.:

We are not sufficiently careful about looking after the muscular atrophy that follows joint injury. More persons have stiff, irritable knees due to that than any other thing. There is also a large element of tissue in this condition. Athletes will not allow their joints to be fixed. They use them with light bandages. Accompanying the muscular atrophy in some cases there is a distinct atrophy of the bone, which diminished to one-third its normal width. A good many of the effects we see in chronic joint disease are possibly due to bone atrophy.

Dr. L. W. Ely, Denver, Col.:

How can weight-bearing cause a less amount of atrophy of the limb than a treatment that causes function of that limb? Muscular spasm is nature's method of putting the joint at rest. It cannot cause trauma to the joint. It is motion that causes the pain. Trauma may have a slight causative effect in joint tuberculosis, but hardly in the bone. Where the tuberculosis focus occurs in the bone, the bone is subject to trauma. The only way to find the solution to these questions, is to ask "Why," when any opinion is advanced regarding fixation and traction.

Dr. H. A. Wilson, Philadelphia, Pa.:

Weight-bearing is not the only method applicable to bony ankylosis, but it gets rid of some of the results of uncarefully applied fixation and confinement in bed. The physical improvement of twenty patients with tuberculosis of the hip, who were in Atlantic City all winter, who never slept in a warm room, and with very little fixation, has been phenomenal; and it shows that the emaciation that we see when there is fixation in bed and disuse is not present. When there are enough cases to form a reasonable basis for analysis, in showing that there is a possibility of doing with tuberculosis what is being done with scoliosis, where the work being done seems marvelous. We are progressing toward the solving of the problem.

Dr. P. W. Nathan, New York City:

Our duty lies in the direction of finding, in the beginning, which cases will do well with extension and which are best adapted to fixation.

Dr. F. H. Albee, New York City:

I could show X-rays of cases where there has been such a tremendous rarefaction of the head of the femur that it gave no more density than the softer tissues in which it was embedded. That type of case should have weight-bearing removed, and be either placed in bed with traction, or put into a brace that would prevent weight-bearing, if not produced traction.

Dr. Virgil P. Gibney, New York City:

I believe that the X-ray is not always so reliable as some people make out. This question of rarefaction is a puzzling one among radiologists. Some say that it means tuberculosis; and others, that it does not. I am still a believer in the value of a full history of the patient and how he behaves under different circumstances. In my later work I have religiously used the plaster spica in all early cases; and the results have been so uniformly good that I have sometimes questioned its being tuberculous. I have wondered whether it was not infection of some kind. I have been trying for some time to get some ambitious member of the staff to collect two or three hundred of these cases and get their end results. In many cases of X-ray plates that I see from men, whose reputation is great for that line of work, I find that they cannot tell whether it is a degenerative or a regenerative process that is going on in the head and neck of the femur. I believe that many of these cases are regenerative, and throw out bone to protect the parts about the joint.

Dr. Joseph Root, Hartford, Conn.:

There is a sensitive stage in every case, which you can see without the aid of X-rays or anything of that sort. It would seem to me that this is the stage when the child should be kept quiet. I do not believe that we have any preambulatory extension that can be as much protection to the joint as the ordinary fixation.

Dr. Charleton Wallace, New York City:

Three years ago I took out an armful of pictures containing some coxa-varas and tuberculous lesions, etc. The plates that showed the least amount of bone destruction were the ones that had had only plaster of Paris treatment and rest in bed. The cases that had had brace treatment had more destruction of the head. Some had pathological displacements. The solution of the problem, I believe, will be in raising the resistance of the patient. He should be out of doors all the time, and get good nourishing food. He should be kept from brain fatigue and brain tire.

Dr. G. G. Davis, Philadelphia, Pa.:

There are two kinds of spicas. One is the short spica, and the other is the long spica. I am opposed to the short spica; and I believe that a long spica, from the waist to the toes gives fixation and rest, and that the short spica does not. So far as the treatment of the active stage goes, I believe in absolute rest in bed, with as much fixation as one can obtain. The long spica should be kept on until the patient can be got out of bed, when a high shoe on the opposite side and crutches should be put on—instruments to be resorted to only when all active symptoms have subsided. Our experience has been that children do better in our hospitals than at home. Personally, I look with suspicion on the convalescent homes. The general condition improves and the local condition deteriorates.

Dr. B. E. McKenzie, Toronto, Can.:

I have thought that traction was meant to serve a double purpose; that of keeping the head of the femur in such a position that it will not be brought violently into contact with the acetabulum, and that of preventing deformity. We cure the disease by enabling the resistance from within to throw off the affection. The part where the tuberculous lesion is should be exposed directly, for hours every day, and this treatment continued for months. I believe that no long brace has ever supplied complete fixation for the joint.

Dr. C. J. Jager, New York City:

There should be a distinction drawn between the short spica and the Lorenz spica. The short spica will not fix the hip; but the Lorenz spica fixes it absolutely.

Dr. T. H. Myers, New York City:

The focus is sometimes in the epiphyseal line, and sometimes in the acetabulum. In the first case the amount of immobilization needed is very different from what is needed when the findings show that the focus is in the joint itself. There was a case in which the X-ray showed a destruction of fully one-half the head. I saw the case two years afterwards, and there had been a regeneration of the head to its normal shape.

Dr. V. P. Gibney, New York City:

We have long since forgotten all about those spindle-shaped femora and tibias. All are of good size now.

Dr. J. E. Goldthwait, Boston, Mass.:

All of us are agreed that hip disease is a general disease, and that local treatment is a question of individual experience. Local treatment is certainly no more than protection. I think bone atrophy does not come from disease, but from disuse. At one time, I started on a hunt for a lot of cases, that had come to the hospital, in order to see the results of our treatment. I found many that had taken care of themselves and were better than those who were being treated by us. Dr. Morton, of the American Hospital in Paris, said that the results obtained by the direct exposure in a hospital in Switzerland were superior to the sun treatment.

Dr. J. P. Lord, Omaha, Neb.:

When the condition indicate that the head of the bone is liable to break down, traction is the indication. The amount of traction now used is not adequate to prevent the destructive process and mechanical displacement.

Dr. Wallace Blandhard, Chicago, Ill.:

It is friction that does the destructive work in the hip joint in the majority of cases. Lateral, as well as longitudinal movement is necessary for this, and I have advised using both kinds of extension to produce traction in the direction of the neck of the femur.

Dr. Packard:

The object of my paper was to emphasize the necessity of treating these cases according to their type and the stage of the disease.

Dr. Taylor:

There are two factors to consider, general and local hygiene. We are appreciating both of these factors in their details and their divergent requirements in the different classes of cases.

Further Observations on the Use of Intra-Articular Silk Ligaments in the Paralytic Joints of Poliomyelitis Anterior, by Dr. Bernard Bartow and Dr. W. W. Plummer.—Dr. W. W. Plummer, Buffalo, N. Y· During the past year the writers have employed this procedure exclusively in fifty joints. Many of the cases have too recently been operated to be more than suggestive of the improvement that is anticipated. That the procedure has been developed to the point that takes it out of the experimental stage may be confidently stated. While this procedure is not advocated as an exclusive mode of treatment, it is not too much to assert that it may become so in some cases. There is also necessity for careful protection of the joint after the operation for a prolonged period.

The Results Obtained by the Implatation of Silk Ligaments and Tendons for Poliomyelitis Paralysis.—Dr. Nathaniel Allison, St. Louis: Artificial ligaments and tendons are more valuable than the older operation for stability, namely, arthrodesis. The author's method is to imitate the pull of normal tendons by silk cords; inserting these in the bone above and below and running the silk tendon in the sheath of the paralyzed tendon. In no case has there been infection, nor has the inserted silk caused trouble. The use of one or another silk artificial ligaments or tendons is preferable to arthrodesis in children.

Discussion of Bartow, Plummer and Porter papers

Dr. J. P. Porter, Chicago, Ill.:

I want to ask Dr. Allison what is the objection to boring a hole through the entire tibia, instead of merely in the periosteum.

Dr. Allison:

There is no objection.

Dr. Porter:

Would it not give a stronger support?

Dr. Allison:

Yes, it would.

Dr. John Dunbop, Washington, D. C.:

I should like to ask what becomes of the silk when it is sewed into the bone insertion at both ends. As the length of the bone increases, I should think this would cause deformity.

Dr. Prescott Le Breton, Buffalo, N. Y.:

Three things have impressed me: First, the little reaction that takes place in the tissues from the introduction of the ligaments; second, there are many conditions that could be relieved in this way; third, the importance of protection afterward. The real thing that takes place is the formation of fibous tissue along the silk ligaments later. That is what we want, rather than the silk ligaments themselves.

Dr. R. W. Lovett, Boston, Mass.:

I should like to ask Dr. Plummer whether he uses braid or twisted silk, and whether the strands are knotted separately or all tied in one large knot, also whether in the cases of simple drop-foot, the ligament is tied to itself or carried across the foot and fastened in a mattress suture.

Dr. H. A. Wilson, Philadelphia, Pa.:

I have had personal experience with a knot that cannot slip. It is the fisherman's knot. It is possibly better than the ordinary square knot.

Dr. Plummer:

We have used the Corticelli twisted silk. The knot used in the earlier cases was a square one. In the drop foot illustrated, the basket suture goes all the way around. and produces a stirrup ligament. Dr. Wilson's suggestion is an excellent one. There has been no unpleasant reaction; but we have considerable reaction about the joint and thickening of the capsule. Protection should be carried out for a long time. I cannot answer the question in regard to what becomes of the silk when the leg grows, because the experience we have had has not included any great length of bone.

The Industrial Education of the Crippled and Deformed.—Dr. H. Winnett Orr, Lincoln: The care of cripples is part of the modern tendency toward the prevention of dependency. Even after adequate hospital care, many orthopedic patients lapse into dependency for want of an occupation. It is necessary that some kind of employment should be selected by a competent orthopedic surgeon, who should have subsequent supervision over the crippled and deformed. The ideal arrangement is for the hospital and training school to be combined in one institution. There is a great need for such institutions, only a small number of which are in existence at the present time. Cities and states should make such training in connection with orthopedic hospitals a part of their educational system.

Discussion

Dr. H. Tunstall Taylor, Baltimore, Md.:

We have had the co-operation of both the city and state, regarding the educational training of the children. As soon as they are able, they go to the school room, where we have the regular school system, established by the school authorities of Baltimore. After a child has been with us several months it goes to its proper grade in the public school. We have a definite selection of occupations suitable for the individual cases.

Dr. W. G. Stern, Cleveland, Ohio:

I visited the New Jersey Training School for Feeble-Minded and Defective Children, at Vineland. It was wonderful what educational training had done to improve the arm muscles of children with spastic paraplegia, enabling them to learn trades. With a slight change in the plan, this institution might be taken as an example for the conduct of schools for crippled children, in other states.

Dr. C. H. Jager, New York City:

It is remarkable what can be done with these cases. We should not consign these poor defectives to the scrap heap before we have tried to do something for them.

Dr. Orr:

Our children should not be put into direct competition with normal children; they need special educational methods.

The following papers were read as a symposium and discussed together.

The Abdomen An Important Factor in Chronic Joint Affections.—Dr. Frank E. Peckham, Providence: Many joint conditions are due to faulty physiology. Intra-abdominal pelvic pressure is an important factor. Putrefactive processes are due to sluggishness of the intestinal functions. There is a sagging of the intestines with atonic walls and flabby muscular development. Thinking surgeons are beginning to realize that only a few cases are benefitted by so-called short-circuiting, and that the question is a physiological one. Physic-therapy offers most in the way of permanent benefit. General gymnastics, as in out-of-door sports, are beneficial. Special gynmastics that develop the abdominal muscles are important. Mechanical vibration, properly applied, is a great stimulant to general physiology. The D'Arsonva current and the Morton wave current, applied to the abdomen, stimulate metabolism.

An X-Ray Study of Gastro-Intestinal Findings in Multiple Arthritis.—Dr. George R. Elliott, New York City: These plates have been taken from ten selected cases of walking patients afflicted with classical type of chronic polyarticular arthritis. Nine showed ptosis of some portion of the viscera or stasis in the stomach or colon; one showed a markedly dilated stomach; and three, enlarged spleen. From these cases I draw the following conclusions: While the primary etiology of the disease does not lie here, yet we are dealing with important factors which tend to keep up a vicious circle. The original infective toxins, in many cases soon cease to act; but the abdominal conditions, acquired and otherwise feed the already diseased joints. The physician who does not have a proper examination—X-ray and otherwise—neglects his patient. Most of the abdominal intestinal conditions may be remedied.

Some Conditions of the Pathogenisis and Treatment of Toxic Polyarthritis.—Dr. P. W. Nathan, New York City: There exists very little definite knowledge of toxic polyarthritis. The general opinion seems to be that there is a definite joint disease as a result of auto-intoxication from the intestinal tract; but in the reports of the cases of undoubted auto-intoxication from this source no mention of joint symptoms is ever made. The conception that a toxic joint condition is the result of intestinal putrification, seems to rest on the basis that in a certain percentage of the cases there is indican in the urine. It has been disproved, however, that indican in the urine is of any diagnostic importance. Nor has it been definitely shown that the cases reported as toxic arthritis of intestinal origin, have any connection with the intestines. The treatment must be based upon general principles and directed towards the general condition. Care in the examination, attention to detail and careful study of the individual cases are necessary if treatment is to be successful.

The Etiology of Chronic Arthritis.—Dr. Leonard W. Ely, Denver, Col.: The cause advanced for this group of diseases is still a matter of debate. As we study the history of the subject, we see the infectious theory gradually growing in strength. I believe that all these diseases are infections. Every bone and joint disease whose exact cause we know is infectious. It is perhaps better for the present to believe that a number of different organisms may be responsible for these diseases, especially as this agrees with clinical evidence. Finally let it be said that in many of these cases of chronic joint disease a distinct source of infection has been found, and in some the removal of this source of infection has been followed by an improvement or a cure of the joint disease.

Cases of Acute and Chronic Arthritis (Acute Toxic Arthritis Arthritis Deformans, Rheumatoid Arthritis, Etc.)—Dr. Michael Hoke, Atlanta, Ga.: I studied a series of forty-seven cases, extending over fourteen months, without regard to classification. I found, running through the whole series, while they were acute, a profound disturbance of metabolism. As the patients got better, their metabolism became nearer to the normal. As we cut down their protein, the excretion of uric acid rose coincidently with improvement in the patients. An ordinary healthy human being, can take care of intestinal putrefaction. The arthritic patient cannot take care of it. It harms him, and should always be avoided.

Discussion of the Papers of Drs. Peckham, Elliott, Nathan, Ely and Hoke

Dr. Joel E. Goldthwait, Boston:

This group of so-called mechanicians have gone so far as to recognize that the joint symptoms is merelya symptom and not a disease. It seems to me that we have in the abdominal region and the organs inside an explanation of one of the difficulties that the human family has. One of the penalties that we all have to pay for being bipeds, instead of quadrupeds, is a maladjustment of our viscera. It is of no consequence, unless it leads to some disturbance. The anatomic type usually considered normal has been found to be rather uncommon. A series of cases were measured by Dr. Brown and myself in the dissecting room. We found that a great many people have only half of the small intestine. Of course these patients are not well nourished. The possibility of organisms traveling up this short intestine from the colon and getting to a point where absorption can take place is, naturally, much increased in such persons.

Dr. J. L. Porter, Chicago:

In the St. Luke's Hospital at Chicago, we had a nurse who suffered with a chronic arthritis of the ankle-joint. We found that she had had severe tonsilitis in previous years, a great many years before this time. After going over the case and not finding any cause for the joint trouble we advised operation on the tonsil; and the tonsils were removed. In the center of the larger of the two, there was discovered a little focus of infection. The pathologist made an emulsion of the contents, and injected the ear of a rabbit intravenously with a very little dose of this material. Within a few days the rabbit developed marked enlargement of the wrist joint, which showed chronic articulat changes. At the same time, a professor in Chicago University dies with an acute pyogenic infection, which involved all his joints. At the autopsy, Dr. Davis secured this infective material; and, at the same time that he injected the other rabbit, he injected the veins of the ear of a second rabbit with this material obtained from the body of the professor. The second rabbit developed the same type of infection in all its joints. The infection was of the same type that the rabbit that had died had shown. The changes in both were identical and type, and were in the same location as in the patients from whom the material had come.

Dr. S. M. Cone, Baltimore: I should like to know whether the internal secretion itself, as a poison, produces the joint trouble, or does so by its action on whatever organism is present. It appears to me that it is the abdominal secretion of harmones which will allow of some abnormal action of the intestinal tract—possibly delayed passage of the intestinal contents, which then allows some of the conditions to which Dr. Hoke has referred to accur, these, in turn, allowing of poison of the joint involved.

Dr. H. P. Galloway, Winnipeg: Dr. Porter failed to tell us what was the effect on the patient's ankle produced by removal of the tonsils.

Dr. Porter:

She was cured.

Dr. C. F. Painter, Boston:

A great many infections do not produce any symptoms, and a great many anatomic disarrangements do not give rise to disturbances; and probably a good many internal secretions may be disturbed without causing anything that we can recognize as a clinical disturbance.

Dr. A. H. Freiberg, Cincinnati:

I think that we are in danger of falling into a kind of scientific empiricism. Unless we confine our studies more closely to the joint phenomena ourselves, we are likely to be carried into the realm of internal medicine without getting much nearer to the solution of our question.

Dr. J. J. Nutt, New York City:

I have noticed this: that in the treatment of tuberculosis joints, those children who were allowed free motion of every joint possible and lived as normal a life as was consistent, did remarkably well in comparison with those treated with more or less confinement. I have also followed out this treatment in some chronic rheumatoid arthritis cases, and a great deal may be said in favor of permitting and encouraging all functions of the body that do not interfere with the correct treatment of the joint.

Dr. G. R. Elliott, New York City:

Our studies have shown that the disease we call Still's disease cannot be regarded longer as a distinct disease entity. Still made the claim that this disease occurring in children differed from arthritis in adults; and that in the latter, the enlarged spleen was not found. In four of the ten cases that I reported today, the spleen was much enlarged.

Dr. Nathan:

I merely wished to call your attention to the only possible method of solving the problems or progressing in a study of these conditions. Unless we take all our cases and formulate definite clinical entities as nearly as we can, separate the cases, and bring them into connection with definite pathological conditions and clinical conditions, how can we learn anything about these cases? When we come to deal with joints, we are dealing with a mechanical apparatus. It makes very little difference what the process in the joint is, the mechanical conditions are impaired, and the impairment is apparently the same; so that we have difficulty in differentiating the joint conditions *per se*.

Dr. F. E. Peckham, Providence: I feel that there are a very large number of cases due to faulty physiology in the abdominal region somewhere. I think that the time may at last come when most of these joint diseases, with their different pathological conditions, will be found to be due to one main thing. The treatment, of course, must then be applied to that thing, instead of to the end results in the joint.

Dr. L. W. Ely, Denver, Col.: Instead of building up clinical entities and studying their pathology, we should build up pathological entities and mould the clinical manifestations upon them. The changes in these merely represent the disease of the essential elements of the joint, which are the synovia and the bone-marrow.

Stero-Arthrolysis—Restoring Mobility in Bony Ankylosis of the Joints.—Dr. R. Tunstall Taylor, Baltimore, Md.: Ten months ago the writer began laboratory and animal experimentation to determine a liquid, absorpable, animal substance that could be sterilized, injected by syringe between the denuded ends of the bones entering into the proposed new-made articulation and that would immediately solidify in such manner as to prevent contact for some six or eight weeks before absorption. Yellow wax -1, and lanolin 2-5 were the chief substances and proportions determined on after careful study. The advantages of this method, the writer claims, are, primarily, the prevention of the reformation of bony adhesions in properly done cases; the absence of pain, none of the above requiring any anodyne; the speedy, voluntary ability to move the joint as compared with other methods; the absence of fever and suppuration; the hemostatic effect of the wax on the bone ends, absence of hematomata and ecchymosis and the rapidity with which the operation can be done compared with other methods.

Absence of the Bony Femoral Heads and Necks.—Drs. John Ridlon and H. B. Thomas, Chicago: Absence of the bony femoral heads and necks, supposedly occurring in rachitic chldren, is a rare condition as proved by the bone pictures taken later in the life of the individual cases where bone salts have been deposited. X-ray pictures taken at different angles will sometimes give evidence of a head and neck in a supposedly congenital absence.

Bone Transplantation in the Treatment of Club Foot, Pseudoarthrosis, and Pott's Disease.—Dr. Fred H. Albee, New York City: In cases of club foot in older children, where adduction of the front part of the foot predominates, a wedge of bone has been ingrafted into the scaphoid, in several cases with most gratifying results. In several cases of pseudoarthrosis of long standing, a strip of bone about five inches long by one-half by one-third, from the crest of the healthy tibia, has been inlaid into the cortex of the end of each bone fragment, and fixed with heavy kangaroo tendon through drill-holes in the recipient bone fragments. A firm union has been secured in each case, and in one in which a Lane plate had previously failed. In thirty-two cases of Pott's disease, a prismatic shaped piece of the tibia has been implanted into the spinous process of the diseased vertebrae, with most striking results.

Discussion of Papers of Drs. Ridlon and Thomas and Albee

Dr. S. M. Cone, Baltimore, Md.: Was it easy to get a protected wound to protect the transplant where Dr. Albee had to cut into the contracted tissue on the inside and put in the transplanted scaphoid?

Dr. G. G. Davis, Philadelphia, Pa.: I believe that the present means of treating Pott's disease are so unsatisfactory as to justify our resorting to radical measures. Even after a quiescent stage has been reached, the deformity increases. The disease extends over many years, and frequently breaks out afresh and kills the patient. I am a firm believer in the regeneration of bone in the transplantation of bone in these various processes. I think the procedure is not so serious as to preclude our using it.

Dr. John B. Murphy, Chicago, Ill.: Dr. Albee's treatment is the first ray of light on the management of spondylitis. It is a prophylaxis against deformity. Putting in a bone is easy to do now. You can apply the treatment of transplanting of bone from the same individual, having contact of bony surfaces with the periosteum, the first time that the child shows stiffness and fixation; and you will have a uniform regeneration of the bone in the transplant. A graft of bone, once transplanted, does not grow in length, but only in circumference. If the periostium is left on the bone will not spread. The entire role played by the graft is that of supporting the Haversian vessels. The graft must be human bone. This treatment is going to be ideal for ununited fractures. Where there is a defect in development these grafts may be used with effect.

Dr. J. T. Rugh, Philadelphia, Pa.: Does it make any difference which side of the graft is placed to the firm half of the process? There are certain fractures of the neck of the femur that refuse to unite. Would the insertion of a piece of this bone tend to bring about bony union?

Dr. B. E. McKenzie, Toronto, Can.: I did not notice that anything was said about transplanting bone where there is deficient bone congenitally. Nothing was said by Drs. Ridlon and Thomas regarding complete absence of the femur.

I have seen four cases in which there was nothing, except an indefinite nodule at the upper end, to indicate where there was a reminant of the femur left.

Dr. Rugh:

In a case of congenital absence of the lower two-thirds of the tibia, I substituted the fibula; and it became practically of the same size as the tibia, and is keeping pace with its growth.

Dr. T. H. Myers, New York City: Two of Dr. Albee's X-ray illustrations show the diseased bodies separated by considerably more interval than they would have been before he had straightened them. Our old idea was that these would not heal unless the surfaces came together.

Dr. Goldthwait:

I have seen a case in which both fibulae were transplanted to take the place of an absent tibia. There is deformity of the foot, but both legs have developed so that the child runs about and plays without difficulty.

Dr. H. P. Galloway, Winnipeg, Can.: I am a firm believer in the principle that if you can bring about ankylosis in tuberculous joints, you will cure the disease. This is not easy in the sacroiliac joint. I should like to ask whether the transplantation of a bone graft into the sacroiliac joint would bring about ankylosis in that joint.

Dr. Abraham Jacobi, New York City: I found that my fractures would heal more readily when I fed my patients on phosphorus. My cases of Pott's disease and tuberculous ankles got decidedly better in a shorter time with phosphorus than without it. Tuberculous disease, not only in the lungs, but in the soft parts and in the bones, will do well when systematically treated on arsenic. We should not forget that there are other things besides operations, and that a great deal can be done to strengthen and purify the system for the purpose of making an operation more successful. Arsenic is a semi-specific in tuberculous disease. You will get better results if your patients are in good condition; such as you can bring about by the use of phosphorus and arsenic.

Dr. J. B. Murphy, Chicago, Ill.: The tendency has been to go entirely away from medication; but we are coming back now to the things that combat tuberculosis in the bone, lung, and every other position, the apex of which is represented by arsenic.

Dr. Albee:

The disadvantages in the use of metal and other foreign bodies are obvious. You cannot trust metal to hold tension in bone. If motion persists in tuberculous disease, it is a danger, and favors a relapse of the condition. The autogenous transplantation of bone is very important, as Dr. Murphy has said. The graft should be placed against the unbroken side. When I first began I placed the cut side next to it; but I have since turned the graft around, split the periosteum, and put the periosteal side against the unbroken spinous process. I should think the plug of bone would be worth trying in the case of fractures of the neck of the femur. I see no reason why the transplant should not be put directly across from the sacrum to the ilium, as this would fix it more simply and with less operative procedure.

Congenital Absence of the Fibula.—Dr. Prescott Le Brenton, Buffalo, N. Y.: I wish to report two cases of this rare condition; one of which was operated upon with satisfactory results. Also, to show some photographs and X-rays of these cases.

The following officers were elected for the ensuing year: President, Dr. A. R. Shands, Washington, D. C.; First Vice-President, Dr. J. D. Griffith, Kansas City, Mo.; Second Vice-President, Dr. David Silver, Pittsburgh, Pa.; Treasurer, Dr. G. G. Davis, Philadelphia, Pa.; Secretary. Dr. Ralph R. Fitch Rochester, N. Y.

The next meeting will take place at Washington, D. C., in May, 1913.

RETROSPECT OF CURRENT PEDIATRIC LITERATURE

Orthopedic Surgery

Under the Charge of

JAMES K. YOUNG, M. D.

Professor Orthopedic Surgery, Philadelphia Polyclinic; Clinical Professor Orthopedic Surgery, Woman's Med. College, Pa.

Shoulder Disability (Stiff and Painful Shoulder), by Walter M. Brickner, *Am. Jour. of Surg.*, June, 1912. Shoulder disability either after or without antecedent trauma is a common affection and often difficult todiagnose. The most prominent symptom is limitation of abduction of the arm. Rotation may be markedly limited or almost normal. Pain may be spontaneous or may be caused only by motion of the arm. It is greatest, usually, in the region of the acromion, and it may radiate down the arm. There is often marked tenderness at certain points, *e. g.*, just external to the acromion process, over the greater tuberosity, external to the corocoid process, according to the site of the lesion. There is no deformity.

In diagnosing the condition, one must exclude bronchial neuritis, circumflex palsy, intra-articular lesions, gross fractures of the humerus, the acromion, the clavicle, and the scapula and lesions of the head of the humerus such as tuberculosis, gumma, and neoplasms.

Subacromial bursitis is the most frequent cause of stiff and painful shoulders. It can often be demonstrated by the X-ray. Injury to the supraspiratus tendon which, at its insertion, is in relation to the bursa, may produce the same symptoms.

Less commonly, coroco-bronchial bursitis, fracture of the greater tuberosity, and spontaneously reduced dislocation or sprain of the axillary portion of the shoulder capsule are causes of this condition.

The treatment is forcible abduction with subsequent active and passive motion in the majority of chronic cases.

Codivilla's Method of Lengthening the Lower Extremity, by Freiberg, *Surg. Gyn., and Obst.*, June, 1912. The author concludes that Codivilla's method is often very useful in overcoming shortening of the lower extremity; that it enables great tractive force to be exerted painlessly; that it is not necessary and that it is not the best method in dealing with fresh fractures that it provides an efficient splint at the site of fracture; and that it is free from danger to the patient.

In this method a steel nail is driven through the posterior part of the os-calcis, and traction is exerted on this nail. While traction is maintained the limb is dressed in plaster from the waist to the middle of the leg. Two steel ferrules are prepared with a longitudinal slot in the lower end and transverse strips of tin riveted to the upper end of each. The slot of each ferrule is slipped over the nail, one on each side, so that the upper end of the slot rinpurges upon the nail. Their upper ends are then attached to the plaster cast by the use of additional plaster bandages. After the plaster has set the traction is released from the nail.

The Early Diagnosis and Treatment of Tubercular Joints, by P. F. Eve, *The Southern Practitioner*, July, 1912. The author considers the symptoms and the treatment of tuberculosis of the shoulder, elbow, wrist, hip, knee and ankle joints. Early tuberculosis of the shoulder joint should be treated by suspending the arm in a sling secured to the side and by counter irritants to reduce the hyperemia. When destruction of tissues of the joint has occurred a free incision should be made over the bicipital groove; but if the disease is in the head of the humerus, the incision should be made over the area of softening.

In disease of the elbow joint the author relies upon the injection of a ten per cent. solution of iodoform in glycerine in the early stages. In the later stages incision and removal of diseased tissues should be employed.

The wrist joint is treated by immobilization in a splint with application of counter-irritation or by the injection of the iodoform emulsion. Later stages must be treated by removal of the diseased tissues.

The early stages of hip joint disease should be treated by immobilization. If abscesses and sinuses develop open operation should be performed and diseased structures should be removed.

The knee joint should be treated by the injection of iodoform emulsion and by Bier's hyperemic treatment. When sinuses exist open operation is advised.

The treatment of the ankle joint is similar to those already enumerated.

General constitutional treatment is, of course, to be pursued vigorously in the usual manner.

Corrections of Lateral Curvature of the Spine, by E. G. Abbott, *N. Y. Med. Jour.*, April 27, 1912. Lateral curvature is a simple deformity that can be easily produced artificially and can be more easily corrected than bow-legs or club feet.

The deformity is produced by a simultaneous flexion and lateral bending of the spine with elevation of the shoulder on the convex side.

Two fundamental principles must be observed in the treatment of the deformity; over correction, and fixation in the over corrected positions. To secure the over correction the spine must be flexed, and drawn to one side by a force applied against the convexity, and the low shoulder must be elevated, and the high one, depressed. Fixation is secured by a plaster jacket.

The patient is placed on the back in a hammock swung from a frame. Heavy felt pads are placed over the sacrum and the crests of the illia, over the angles of the ribs on the convex side and over the prominent ribs in front. A large felt roll is also placed over the concave side, to be removed through the large window cut here after the jacket is applied. The lower limbs are flexed to overcome lordosis, and the foot of the frame is elevated. One muslin bandage passes under the depressed shoulder and pulls it upward and forward, a second passes over the prominent ribs and pulls them sidewise and downward, a third makes counter pressure across the pelvis, and a fourth may be used fastened to the frame on the convex side and passing over the prominent ribs low down and having a weight of twenty-five to fifty pounds suspended from its end. Plaster is then applied in this corrected position. It is trimmed well down over the sacrum and rather high over the sumphysis. It is carried high up under the elevated arm in the concave side and well down below the arm of the convex side, to bring the low shoulder upward and forward and permit the high shoulder to fall downward and backward. A large opening is cut posteriorly over the concavity and another anteriorly in the opposite side.

Over correction is secured in about three weeks, but fixation must be maintained for several months longer. After removal of the jacket the spine must be maintained in the over corrected position by a light brace, and must gradually be brought back to the normal position by massage and exercises and adjustment of the brace.

Abbott's Method of Correcting Fixed Lateral Curvature, by Dexter D. Ashley, M.D., *N. Y. M. J.*, April 27th, 1912. The author presents a preliminary paper upon Abbott's technique highly praising this method in the treatment of non-inflammatory fixed or so-called structural curved—the postural, functional and bi-lateral curves not being included. He discusses the work of Calot, Wullstein, Lovett and Treslow and others and believes that until Abbott "no one has shown us an over correction of a fixed curve as recorded by the X-ray." The author gives his personal experience in a number of cases of scoliosis and endorses the method "as one of the greatest advances in orthopedic surgery in ten years and a great triumph for the X-ray and American medicine."

Diseases of the Skin and Uro-Genital System

Under the Charge of

KENNETH BUCKLEY, A. B., M. D.

New York City

Sarcoma of the Vagina.—P. B. Bland, (*Journ. A. M. A.*, 1912, lix' 509). Bland sums up from the literature 34 cases, and adds one of his own' of sarcoma of the vagina in children. Adult cases are also reviewed. Clinically the type seen in children is a grape-like or polypoid tumor with a tendency to early degeneration. Twenty-nine of the thirty-five cases occurred before the third year of life. This sarcoma botryoides, as it is called, is decidedly more frequent in infancy than in any other period of life. There are three views as to etiology: (1) That it is congenital and arises from the papillae so numerous in the vaginal wall during the first five months of intrauterine life. (2) Cohnheim's theory of embryonal remains. (3) That the tumor arises from the endothelium of the lymph and blood capillaries. Microscopically the tumors have all been sarcomas, the round and spindle cell variety predominating. The symptoms are generally the same. "The first manifestation of local disturbance is the appearance of a thin watery, pinkish, serous discharge. This early becomes bloody and later, as necrotic changes take place, the discharge becomes offensive. This feature was, at times, very marked in the case reported in this paper. It was quite noticeable when the little patient appeared at the hospital dispensary. Later, if the condition is not recognized and removed, a reddish or reddish-purple, grape-like tumor appears at the vulvar orifice. As a rule, the true nature of these tumors is not at first recognized and they are regarded as simple inoffensive pelypi, and are simply removed. Early recurrence takes place and the patient succumbs." Radical removal of the growth and surrounding tissues offers the only hope of cure. Only two of the thirty-five cases are known to have lived without recurrence. Bland believes that the examination of all children with a vaginal discharge should include inspection of the vaginal canal through a speculum, best done under chloroform anaesthesia.

Telangiectases in Children, in association With Wasting and Protracted Diarrhea.—E. G. Fearnsides, (*British Journ. of Derm.*, 1912, xxiv, 35). Fearnsides reports the cases of six children from the ages of 17 months to 10 years, all exhibiting skin lesions and all exhibiting edema, wasting and diarrhea. Two of the six died. The children were practically all tuberculous. Three types of rashes were seen—(1) An erythema. (2) A definite telangiectasis. (5) A purpura. The erythema was mainly confined to the extremities and showed itself as a blush which completely disappeared on pressure. The telangiectases were in places raised and in places flat. Some of their borders were distinctly palpable. In those cases which survived, the telangiectases gradually faded leaving an occasional large capillary. The raised areas showed microscopically edema and slight extravasation but no cellular infiltration. "The telangiectases were found especially on the thighs, and on the trunk around areas exposed to pressure. The erythemata and the telangiectases appeared to be closely related to one another both being the expression of a vascular dilitation." "The purpura was represented by small hemorrhagic spots, in some of which vessels were clearly visible." The author considers the rashes as due to the wasting and diarrhea. The cause of the diarrhea he does not think important, for in one case the intestinal lesions were tuberculous, in another non-tuberculous. He concludes that (1) "The various rashes seen—were the expression of vascular dilitation, the most characteristic being definite telangiectases; (2) These rashes were the direct result of wasting which owed its origin to protracted diarrhea."

A Contribution to Our Knowledge of the Naevs-Xantho-Endotheliomata.—J. E. R. McDonagh, (*British Journ. of Derm.*, 1912, xxiv, 85). McDonagh reports five cases, all in children, and sums up the bibliography on the subject. In three of the cases, the only ones followed, spontaneous cure resulted. The mother of one child had had similar tumors from birth to the age of 14 years. The lesions varied in time of appearance from birth to three weeks after delivery. The site of election was the face, though lesions appeared scattered over all parts of the body. The lesions varied in size from one-quarter inch to one-half inch in diameter. They were slightly raised above the surface, were firm, and moved with the surrounding skin. The early lesions were reddish brown, their centers a little depressed, and along their edges vessels could plainly be seen. Microscopically "there is a dense cellular growth most marked in the deeper layers of the skin, the cells of which take their origin from the endothelium of the capillaries. Then many of these cells disappear while new-formed connective tissue takes their place. It is in this stage that the giant cells are to be seen, some of which are formed by the endothelial cells blocking a capillary, because some which are not completely blocked contain red blood corpuscles; these giant cells are seen under the epidermis, others—and these occur deeper in the corium—are formed by the fusion together of some of the cells of the growth. The grouping together of a dozen or more cells is probably caused by the growth of fibrous tissue which separates them. The cells contain fat. This is the stage in which the lesion microscopically resembles a soft fibroma or connective tissue tumor. On careful examination of the cells at the base of a tumor removed in this stage, some are found to have swollen and taken on the appearance of the honey combed cells to be now described. These cells contain less fat than those met with in the upper layers of the skin, and the fat appears in the form of granules only. The stage further is when all the cells are swollen, contain one or more nuclei well outlined by a strand of connective tissue, and have the honey combed appearance. It is now that the new vessels appear so prominent, and signs of inflammation as a small round celled infiltration are to be seen. The final stage is when these cells also disapperar."

So-Called Precocious Menstruation Combined With Occurrence of Milk in the Breasts of an Infant; a Case with Hereditary Features.—J. L. Vallely, (*Journ. A. M. A.*, 1912, lix, 539). The patient was the fourth child. On the day after birth and for three days thereafter the child had a profuse bloody vaginal discharge. On the eighth day the breasts became engorged and enlarged and a whitish fluid exuded which microscopically showed fat globules. Temperature normal. Three previous female children of the same mother had exhibited both these phenomena and one male child had exhibited the breast phenomena. A history was given of similar occurrences in the father and three uncles and seven aunts on the paternal side. Halban suggests that the cause is the circulation of some substance probably derived from the placenta.

DISEASES OF THE ALIMENTARY SYSTEM

Under the Charge of

JAMES WARREN VAN DERSLICE, M. D.

Assistant Professor of Pediatrics, Rush Medical College, Chicago, Ill.

A New Diet for Typhoid Fever with Notes, by W. M. Garton, M.D., Norfolk, Va., in *The Virginia Medical Semi-Monthly*. A minimum nitrogenous diet for typhoid fever having been so remarkably successful at this hospital in the past two years and especially so during the recent, and one of the most acute, epidemics the Navy has experienced (at one time sixty-five acute cases under treatment), has caused me to submit the following report:

Typhoid fever has been endemic at this hospital during my entire service until the past month and, as prior to that time no special or particular diet had been prescribed for all typhoid cases, I tried to formulate a diet that would, if possible, meet all conditions and stages of the disease; mainly, reduce amount of secondary toxemia (auto-infection), tympanites, avoid hemorrhage prevent perforation and at the same time to have the patient in as good condition as regards to strength and flesh at the end of the disease as possible.

The first step was the elimination of milk—a milk free diet.

A menu was formulated consisting of principally carbohydrates and fats that would meet the requirements of a *minimum nitrogen* equilibrium and containing from 2,000 to 3,000 calories.

Begin diet about 6:30 a. m. Interval between feeding, two hours.

6:30 a. m. One cup hot coffee with two drachms of sugar. No cream. Two slices of zwieback or buttered toast.

8:30 a. m. One portion of Jordan's Bethlehem oats food or Robinson's patented barley, according to bowel indications, with six buttered crackers, saltines.

10:30 a. m. Six ounces soup. Change recipe occasionally.

12:30 p. m. One medium baked potato, mashed and prepared with two ounces of butter. Add large pinch of salt. Two thin slices of buttered toast, hot, and one cup hot weak tea with two drachms of sugar.

2:30 p. m. Two teaspoonfuls of pudding, bread or tapioca, preferably the latter, and six saltine crackers.

4:30 p. m. Two ounces of rice, farina or cream of wheat, thoroughly mixed with one ounce of butter and four drachms of sugar. Change from day to day to alter diet.

6:30 p. m. Three slices of buttered toast.

8:30 p. m. Six ounces of soup.

A More Liberal Diet in Typhoid Fever.—Charles R. Grandy, M.D., *The Virginia Medical Semi-Monthly*, June 21, 1912. Among the most common symptoms of the last weeks of typhoid fever are emaciation, great hunger, and the finding of diacetic acid in the urine.

Thus on a diet of milk alone it is seldom possible to get down more than two quarts a day, which gives us 1,280 calories, while a 150 pound man needs 2,250 at the lowest to keep from drawing on his tissues for nourishment. It was often customary to substitute other articles such as beef tea and orange albumen for some of the milk feedings. While this was very valuable in keeping the patient from getting tired of the milk, it really cut down the caloric value of food instead of increasing it.

A patient losing weight should be given more food if he can digest and absorb it. A patient who is hungry should be given sufficient food to appease his appetite. In the early stages of severe cases it is always difficult to give more than three thousand calories a day; in the steep curve period and in convalescence a patient can easily take four thousand to six thousand calories a day.

Typhoid Diets at Norfolk Protestant Hospital.—I. Fluids. II. Milk, buttermilk, malted milk, Mellin's food, whey, junket, plain ice cream, blanc mange, milk toast (without crust), soft crackers, cocoa, broths, rice, lactose, eggs (soft boiled or raw), finely minced chicken. III. Steak, chop, white meat of chicken (in small quantities), toast, bread, cereals, crackers, eggs in any form, mashed potatoes, tomatoes (strained), stewed fruits, oysters. Patients must be told to chew all food well.

In the patients we have had on this diet we have had little emaciation, no hunger, shorter convalescence and an apparent avoidance of relapses, which occurred rather frequently last year in cases fed in the old way. There is no reason why a rough estimation of the caloric value of the diet should not be made for typhoid patients, treated at home, if the physician get one of the simple tables showing food values. Of course, it will be impossible to weigh these patients, but we can easily see that a patient gets beteeen fifteen and twenty calories for each pound of his normal weight and it is better for him to get the twenty calories than the fifteen.

Edema of the Glottis.—By Archibald C. Lewis, M.D., (*Southern Medical Journal*, July, 1912). Any disease having a sudden onset, rapid course and high mortality is necessarily a very serious one. Such is edema of the glottis. With little warning the loose submucous tissues of the larynx become infiltrated with a serous transudate from the congested blood vessels of the inflamed organ. This produces an obstruction, which in turn causes the greatest apprehension to the patient and its family of imminent death from suffocation.

The disease is probably an angioneurosis, closely akin to acute angioneurotic edema, which is defined as a neurosis characterized by transient circumscribed edema developing without obvious cause. I fail to find any substantiation of this theory, or even a suggestion of it, in any of the works on laryngology, but both Osler and Dieulafoy in describing acute angioneurotic edema mention the sudden and dangerous edema of the larynx that may occur in that disease.

The acute form of the disease usually responds quickly to treatment. Scarification of the edematous parts, or puncture with the laryngeal lancet should be made at once, followed by such astringent application as suprarenalin, cocaine and alum. The patient must be kept in a warm room with a moist atmosphere, ice cap to the laryngeal regions externally and small pieces of ice constantly sucked and swallowed. Free diaphoresis and catharsis should be promoted, and where the underlying cause can be ascertained it should receive suitable attention. Besides all this the case must be closely watched and everything be in readiness for a rapid tracheotomy or intubation. The former is to be preferred because the opening is made below the inflammatory process.

The treatment differs little in the chronic edema, but the prognosis is bad, for relapses are common; however, the patient's life can be prolonged and he be allowed to make his demise by a more pleasant and less violent route.

Care of the Teeth in Children.—Mr. L. Storrow Shennan contributed a paper, (*The Lancet*), on the care of the teeth in relation to the health of children at the school ages—the provision of special school dental clinics. He said: Instead of toothache being the sole condition which requires the attention of dentists we are now beginning to realize more clearly the influence of dental caries in the production of oral sepsis, alveolar abscesses and of such habits as food-bolting. We are also becoming convinced that caries is almost certainly of etiological importance in inflammation of the tonsil, digestive disturbances, gastric catarrh and ulceration and severe anemias. It probably also has an influence in the causation of peripheral nerve irritation, certainly of neuralgia, and even of epilepsy.

An individual with carious teeth is incapable of masticating his food sufficiently or of impregnating it well with the salivary juices. Food incompletely masticated remains longer than it should in the stomach; fermentative changes may arise in it and digestive disorders and gastric catarrh follow. The converse proposition that "malnutrition affected the condition of the teeth" is not necessarily true. Perfect teeth are seen occasionally in children who have never used a toothbrush and who live under the most unfavorable conditions.

Oesophagismus in a Child.—Dr. George Peacock described, (*The Lancet*), a case of œsophagismus in a child aged three years who had recently been under his care. The patient was admitted to hospital on account of vomiting, which had been more or less persistent for the past 18 months. Vomiting had started after a severe attack of whooping-cough. A brother had died, when five years old, from vomiting, which had commenced when three months old, and had, with short intervals of freedom, continued through life. The child appeared well nourished, and nothing abnormal could be detected on examination except a loaded colon, which was easily relieved by enemata. Vomiting would occur after a few spoonfuls of food were taken, and the remainder of the meal might be retained. Some days the vomiting was more severe than on others, and the character of the food seemed to make little difference. X-ray examination after a small bismuth meal showed the œsophagus full, none of the meal having reached the stomach. Examination with the œsophagoscope did not reveal any growth or stricture.

Meningitis.—Dr. J. F. O'Carroll and Dr. F. C. Purser communicated a case of meningitis due to bacillus typhosus, (*The Lancet*). The patient, a boy aged nine, had been admitted to the Hardwicke Hospital as a case of typhoid fever. Widal's reaction was obtained on the fifth day of the illness. None of the usual signs of typhoid were present—no rose-spots, no enlargement of spleen no diarrhea. On the other hand, the mental condition was most suggestive of meningitis, and headache, retraction of the neck, and Kernig's sign were marked. Typhoid bacilli were grown in pure culture from the cerebro spinal fluid, which contained as well 1,100 leucocytes per cubic millimeter; of these, two-thirds were polynuclear and one-third mononuclear cells. The patient died three weeks after the onset of illness. The membranes over the convexity of the brain were covered with a purulent exudate. Over the occipital lobes the exudate was hemorrhagic. Bacillus typhosus was separated in pure culture from the exudate. The bacteriological examination was made by Lieutenant T. A. Hughes, I.M.S. There was some slight congestion of the lymphoid tissue in the intestine, and in the right lung were three small patches of broncho-pneumonia. The other organs, including the spleen, were normal.—The President said the case illustrated what he had long felt—namely, that any abnormal localization in a specific poison is bad.

BOOK REVIEWS

Compendium of Diseases of the Skin, by L. Duncan Bulkley, A.M., M.D. Physician to the New York Skin and Cancer Hospital; Consulting Physician to the New York Hospital; Consulting Dermatologist to the Randall's Island Hospital, to the Hospital for Ruptured and Crippled, and to the Manhattan Eye and Ear Hospital, etc. Fifth revised edition of the Manual of Diseases of the Skin. Price, $2.00 net. Paul B. Hoeber, 69 East 59th Street, New York.

The extent and functions of the skin render its diseases urgent from every consideration of suffering, disfigurement and interference with general health. Dermal affections are so widespread as to be practically universal. Their dissemination, their importance and the difficulty of treatment have combined to develop dermatology into one of the most forward and active of specialties.

This book represents the personal teachings of its author and contains in substance his lectures, delivered at the New York Skin and Cancer Hospital for many years past. He endeavors to present simply and clearly dermatology from his personal view point making it clearly understood, both by the student and general practitioner. In a small manuel of this size there is no room for the discussion of abstruce questions, or differences of opinion, nor for reference to literature or much consideration to pathology, except as it really aids the comprehension and treatment of certain diseases of the skin. The subject matter of this manuel is based on an analysis of 30,000 consecutive cases of skin diseases, appearing under the author's personal supervision. The subject of diagnosis and treatment are given special prominence in this work and in this edition will be found a revised therapeutic formulary which will prove of practical assistance and value to the physician in the treatment of skin diseases. This little manuel contains a wealth of material from every dermatological standpoint and as such it can be relied upon as a most valuable work of reference to which one may turn with assurance.

The author's sound conservatism, knowledge of the literature and vast experience as a clinician and a teacher speak forth from every page and make the book second to none, a safe and sane guide in dermatological matters. No one who is engaged in special dermatological or in general practice can afford to be without this book.

Arteriosclerosis, Etiology, Pathology, Diagnosis, Prognosis, Prophylaxis and Treatment. With a special chapter on Blood Pressure, by Louis M. Warfield, A.B., M.D. Assistant Superintendent and resident physician to Milwaukee County Hospital; Assistant Professor of Medicine, Wisconsin College of Physicians and Surgeons, Milwaukee, Wis.; Formerly Medical House Officer, Johns Hopkins Hospital, Baltimore, Maryland; Member American Medical Association. With an introduction by W-S. Thayer, M.D., Professor of Clinical Medicine, Johns Hopkins University. Illustrated with 28 engravings. Price, $2.50. St. Louis, C. V. Mosby Company, 1912.

In the second edition of Dr. Warfield's book on Arteriosclerosis, there have been so many changes and additions that the book may be practically considered a new one. All the chapters in the previous edition have been carefully revised. The chapters on pathology and physiology have been completely rewritten and brought up-to-date, the author, thinking it best to add some references for those who had interest enough to pursue the subject further. These references have been selected on account of the readiness with which they may be procured in any library. Two new chapters have been added—one on the "Physical Examination of the Heart and Arteries," and the other on "Arteriosclerosis in Its Relation to Life Insurance." This, perhaps, is the only book in English today on this subject and no subject is of so much importance today to the medical profession as Arteriosclerosis and there is no disease that is so universally prevalent as this one.

In considering the subject of Arteriosclerosis the author has endeavored to give the general practitioner a readable authorative essay on a disease which is especially the outcome of modern civilization. The wear and tear on the human organism in our modern life is excessive. Hard work, worry and our American mode of life all predispose to degenerative changes in the arteries and it is not surprising, when the subject is deeply considered to understand that so many, apparently young people are suffering from premature old age—Arteriosclerosis.

It is impossible to consider this subject apart from blood pressure and Dr. Warfield has wholly rewritten the chapters on this subject, so as to give a comprehensive grasp of the essential features and several illustrations have been added to further elucidate the text. It is a subject with which the general practitioner should devote considerable time and attention in order to be able to prescribe intelligently for this class of patients.

A Text Book of the Practice of Medicine, for students and practitioners by James Magoffin French, A.M., M.D., formerly Lecturer on the Theory and Practice of Medicine, Medical College of Ohio. Revised by Charles Spender Williamson, B.S., M.D., Professor of Clinical Medicine and Associate Professor of Medicine, College of Physicians and Surgeons, (Medical Department, University of Illinois); Professor of Gastro-Intestinal Diseases, Chicago Policlinic. Consulting Physician to the Cook County Hospital and to the Dunning Institutions. Fourth revised edition, 1230 pages, illustrated by 133 engravings in the text and 28 full page plates in tints and colors. Cloth binding, price, $5.50, Sheep, $6.50. New York, William Wood and Company, MDCCCCX.

The demand for copies of this popular text-book have made it necessary for the publishers to bring out the fourth edition. In undertaking this revision, the revisor has adhered very closely to Dr. French's original plan and classification of disease varying only, when the latest progress in medical science had rendered certain changes and additions necessary.

Among the changes in this edition we may mention that the section on nephritis has been entirely rewritten and much new matter has been incorporated. Many changes and additions have been made to the all-important chapters on tuberculosis. The revisor devotes ample space to the uses of tuberculin in both diagnosis and treatment. The section devoted to Diseases of the circulatory system has been thoroughly revised and brought up-to-date. The subject of pellagra Anyklostomiacis and Trypanasomiasis have been thoroughly rewritten and enlarged in proportion with the importance with which these maladies have recently assumed. The value of blood culturesin the diagnosis of typhoid fever, pneumonia and other infectious diseases are given due prominence in this revision. We are pleased to see that a section is set aside for "Diseases of Unknown Pathology" classified as constitutional diseases. This is a wise step and will be of much practical value to the student and young practitioner—guiding them to the "known in medicine." We are pleased to see in this magnificent work a section devoted to "Methods of Clinical Examinations," where the student and beginner in medicine will find the necessary instructions for making blood counts Widal reaction, Diazo reaction, examination of gastric contents, intestinal discharges, etc. The examination of urine, sputum, etc., all of which has recently been revised and brought up-to-the-minute.

In fact, nothing seems to have escaped the author's vigilant eye. The illustrations are more than ordinarily good. The chapter on malaria, though brief, is good. The chapter on lobar pneumonia is well written and does much to the credit of the author. We regret that the subject of poliomyelitis is dismissed with so little said about it.

The orthography and terminology is that adopted by the best lexicographers and as a text-book on medicine we know of none better in the English language. We have never examined a book with which we were more pleased and to commend it is both a pleasure and a duty.

Diseases of Infants and Children, by Henry Dwight Chapin, A.M., M.D, Professor of Diseases of Children, New York Post-Graduate Medical School and Hospital. And Godfrey Roger Pisek, M.D., Professor of Diseases of Children, University of Vermont. Octavo pp. 617. With 181 illustrations and 11 colored plates. Second edition, revised, cloth, $4.50 net. New York, William Wood and Company.

The writer had the pleasure of reviewing copy of the first edition in the January issue, 1910, and that the second edition should be called for in such a short period of time evinces the favorable reception of this work by both medical students and the profession at large. In this second edition the authors have incorporated all new and practical matter that can be of service in any field of diseases of children. The treatment of special diseases by vaccines, especially the variety, has been exemplified and made as practical as possible. A table of dosage for the use of vaccines has also been incorporated. In fact, all recent advances in Pediatrics that do not readily come to the notice of the profession in general are noted in this revision. While much new matter has been added, the authors have thought it best not to enlarge the work to any great degree, thereby keeping it readily accessible for frequent use. The authors being thoroughly conversant with the needs of both the graduate and the under-graduate have produced a text-book presenting a picture or description of diseased conditions as they actually occur at the bed side. The authors have steered straight, taking a middle course between the compendium volume, which is generally unsatisfactory, and a too exhaustive work which, by too much theorizing tends to confuse the student.

This handsome volume embraces a full and complete knowledge of pediatrics, written for both students and practitioners. It is a well balanced presentation of pediatric science and experience. The authors devote sufficient space to etiology and pathology, leading up to a full consideration of the more directly practical subjects of diagnosis, including differentiation and treatment. The section on infant feeding presents the latest information on the subject and in a manner that is simple, easily grasped and readily put into practice. There is a truism in the statement that food "may be chemically right but wrong" and that "each infant is a law unto itself except concerning the form in which it prefers its food." The chapter on the treatment of epidemic cerebro-spinal meningitis is a satisfactory resume of the latest teaching on this subject, lumbar puncture and the hypodermatic injection of Flexner's serum through the anterior fontanelle. In truth this is a text-book for the general practitioner, very explicit in instruction on the doses and uses of drugs, and offers the well informed medical man a repertoire of the science and art of pediatrics. The publishers realize the great worth of the volume and give to it all the art in bookmaking for which they are justly famous.

PEDIATRICS

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EDITORIAL

THE CARE OF THE INFANT

In France, in Belgium and in Great Britain philanthropists and those interested in public health and the preservation of the race have formed societies which aim at not only the care of the infant when born but the care of the mother both before and after the birth of the child. In Paris the first of these societies was established which went by the very appropriate name of "Goultee de tait." In Ghent, and Belgium the plan institutedin Paris was improved upon and it was on the model of the Ghent methods that the numerous British "Babies and Mother Homes" were founded. Those abound now in all parts of Great Britain, Dundee in Scotland being one of the cities to adopt the system. Perhaps, the best managed and most successful now is that imitated by Dr. Sykes, the all health officer of St. Pancras parish London. Dr. Sykes is a hard and fast believer in breast feeding, recognizing the fact that degeneracy among the poor is very largely due to improper and artificial feeding of infants. But Dr. Sykes also recognized that half starved and overworked women were unable to provide their offspring with nutritious milk, so further improving upon the plan pursued in France and Belgium, he, by the help of private philanthropy, opened mothers' and babies' homes in different parts of the immense parish under his control, in which mothers were fed for several weeks before and after confinement, and instructed in the best modes of rearing a child. Each home is a centre to which poor mothers with and without infants go for instruction and aid, and from which nurses are sent to homes as required. It should be said that these institutions have been remarkably successful, the only drawback being, that in spite of the fact that they have multipied, in all the large cities of the country, there are not nearly sufficient of them. At the Mary

Cebone Dispensary, London, Dr. Eric Pritchard is doing splendid work in somewhat similar lines, instructing poor mothers how to care for their babies, providing nurses and when necessary supplying milk modified as he thinks it should be for the little patient.

Of course, in New York, the Charity Aid Organization and the Health Department are doing splendid work in the way of providing nurses who visit the homes of the poor and teach mothers how to care for their children but nowhere on this continent are there institutions conducted on the lines of those in France, Belgium and Great Britain.

The keynote of all these efforts is to induce mothers to feed their children at the breast, for although artificial food chemically exactly similar to Mothers' milk can be prepared, there is always something lacking. A child fed on artificial food may appear to thrive well, indeed often becomes very fat, but it may be stated emphatically that in no instance is an artificially fed child so healthy and vigorous as a breast fed child provided that the mother herself is in good health and is giving good milk, and that child is born healthy. There has been published recently by the Provincial Board of Health of Ontario a pamphlet entitled "A Little Talk about the Baby" written by Dr. Helen Mac Murchy of Toronto. The pamphlet gives hints to the prospective mother and which, if followed, would soon bring about most satisfactory results. With regard to breast feeding Dr. MacMurchy says "The greatest safeguard for the little baby's life is nursing at the mother's breast. If fed that way, the chances are great that your baby will live. If fed any other way, the chances are great that you will bury your baby." This fact should be known to every voter in Canada. They cannot rear an imperial race on the bottle. When a Canadian sees the mother of his child nursing that child at her breast, he sees her doing something of imperial importance. "Nations are built of Babies." We also pointed out that often nowadays a mother is advised that she cannot nurse her baby and she willingly believes this. In ninety nine cases out of a hundred she can do so and therefore this advice is generally bad. Undoubtedly the physician sometimes gives such advice without adequate reasons and his conduct in so doing his advice is reprehensible.

Even if nursing be carried out properly, instruction *is occasionally needed*, in the great majority of cases enough milk will be supplied to satisfy the needs of a healthy child. Too frequent feeding is not judicious, about three hours should elapse between each meal. Even if the mother's milk is not sufficient for the infant and modified milk must be given, maternal nursing should not be given up, no matter how small the supply. Dr. Mac Murchy in her valuable pamphlet deals with other phases of a child's education, weaning etc., but there is no space to comment on any part by that treating of breast feeding. The object of this editorial is to once more insist upon the necessity for breast feeding. It is one of the very greatest calamities of modern life that breast feeding has fallen into disrepute or disuse. The rich idle woman will not feed her own child because it is a nuisance, the middle class woman is coming to the same way of thinking, while the really poor woman who works for her living is the only one who has valid excuse for her neglect. No doubt, a great many, perhaps the majority of these women do not fulfill this natural duty through ignorance of the disastrous results which will surely follow. If they knew as physicians know that much of the degeneration found in cities and in industrial centres is due to lack of development from malnutrition they would resolve to give their offspring a fair chance in the battle of life by giving them their natural food when infants.

ARTIFICIAL FEEDING VERSUS RACE SUICIDE

Much has been written and said of late, gravely, satirically and jocularly, concerning so-called "race suicide," and numerous individual cases of parents with remarkably well filled quivers—which prove nothing—are repeatedly set forth in the newspapers graphically depicted by means of "stepladder" pictures in refutation of the idea that any such calamity is actually imminent. But at the bottom of all the careless and uniformed discussion there is a very real problem, and the concern so actively manifested in England is something more than a new feature for the "funny column."

It must be remembered, however, that other factors beside the diminishing birth rate are concerned in the gloomy outlook, which some have found in regard to this question. The vital statistics also show an astonishing disproportion in the mortality rate of infants and adults. Had the death rate for infants diminished at the same rate as that for older persons we might view with more equanimity the decline in the stork's activity. But when to the diminshed birth rate is added the fact that in England for instance, the mortality of the infantile population is practically stationary, one may be pardoned for asking in all seriousness the question: Is there such a thing as Race Suicide? Apparently the babies have no share in the wonderfully rapid improvement in the handling of disease and accident which has reduced the adult death rate to such an admirable degree. France, Switzerland, Belgium, and Holland are no better off than England in this respect, and Germany, Austria, Italy, and Spain are said to be worse yet.

Naturally, in order to cope with any evil, it is necessary to discover the cause, and leaving those so-inclined to determine to their satisfaction the reason why no more babies are born, it might be well to consider what is the reason that, having been born, so many of them die in infancy. All things considered, after account has been taken of all possible factors, the evidence seems to show that the great majority of babies die from improper feeding. Some are undoubtedly born with a frail constitution, but even these might in many instances if properly nourished reach a reasonably efficient maturity, whereas the most vigorous constitution is not proof against the untoward effects of improper feeding. Just what constitutes improper feeding is not as clear as might be desired, but as to what constitutes proper feeding there is undisputed unanimity of opinion, namely, that mother's milk is the best food for a baby, and that the extent to which artificial feeding of one sort or another is practiced is responsible, more or less directly, for the unduly conspicuous role which infants play in the mortality statistics. It would be desirable of course, to remove the necessity for this mode of feeding, but in many cases one would have to begin, several generations back, in order to remove the physical defect which makes the mother unable to nurse her child, and as far as those who are unwilling to do so are concerned, it is doubtful if any, even the most convincing, arguments would have much effect. In individual cases something may sometimes be done to keep the mother in good physical condition; and any industrial reformation would incidentlly work benefit in this direction. For the rest, something can undoubtedly be done toward reducing the risks of artificial feeding, especially among the poorer classes where ignorance so often lends as fatal aid to poverty as carelessness or malice itself could do.

THE TEETH IN HEREDITARY SYPHILIS

This subject, though one now long familiar by name to the great majority of medical practitioners, is still enveloped in some mist. The question "What are Hutchinson's teeth?"

was recently put to a class of post-graduate medical men studying in this city, and it elicited an amusing variety of replies, some correct in the limited sense, some half correct, some hopelessly wide of the mark. Only half of the class were sure that Hutchinson's teeth were not milk teeth, and none of the number had ever heard that there are other kinds of dental anomaly almost as characteristic of syphilis as the one mentioned—Presuming that readers of Pediatrics who have forgotten these points will be glad to be reminded, and that those who know will have no objection to a review, we venture upon a brief sketch of the subject.

NON-SYPHILITIC TEETH

First, as to what is not syphilitic in dental pathology let us note that the teeth of either the first or second set are related in their nutrition and permanence to the local conditon of the mouth and the general status of the patient. Mercurial stomatitis, prolonged aphthous stomatitis, even simple uncleanliness in the care of the mouth (of babies and adults alike) will result in decay.

It is a familiar fact that prolonged and exhausting acute fevers are often followed by a rapid and general breakdown of the teeth. Some young married women seem particularly susceptible to the systemic drain of the first pregnancy, and before the baby has reached its ninth month of lactation the mother's teeth begin to look gashed and seamed, as though she were seventy instead of twenty-two. Upon these familiar facts one need not dwell. The dental erosions thus produced affect all the teeth equally,—molars and incisors alike,—and there is nothing characteristic in the cups, facets, or hollows that may result. In rickets the teeth are slow in appearing; they may also be illshapen and prone to early decay, but not in any peculiar way. Mercurial stomatitis in infants near the second dentition may modify the shape of the permanent teeth in various ways; some of these distorted and atrophied second teeth are occasionally mistaken for Hutchinson's teeth and once in a great while they may really be deceptive; but if we cling close to the description to follow there should not often be trouble.

TRUE DENTAL STIGMATA OF SYPHILIS.

These become more easily understood when we remember that hereditary syphilis is a disease already present in utero, and that its malign influence is at hand, as a rule, during the entire developmental period of the unborn infant. This explains why teeth not appearing till the fifth year when perhaps the child has been for several years cured to all intents and purposes of the initial rashes, mucous patches, or what not, may yet show a fundamental defect.

In the order of their diagnostic importance we may mention these changes in the second teeth as follows:

1. Irregular decay—cupping or hollowing, or general "collapse." This may be suspicious but is too often seen elsewhere to be of great value.

2. Furrows (dents rayes). Certain of these may be cause for serious consideration; the "sulciform erosion" of Parrot belongs in this class.

3. Microdontism. This is emphasized by Fournier. He attributes greatest significance to the "dwarfism" of the incisors. If these be "doll-teeth." the diagnosis of syphilis is nearly certain to be confirmed by signs of lues elsewhere. In the same class may be placed tuberosities and projections "Amorphism" of the teeth in the stricter sense (e. g., incisor for canine), and genuine monstrosities fall (though with less certainty of specific relation) under the same heading.

4. Atrophy of the crown. This may occur as far back as the first molar, giving the top of the tooth a shrunken and wrinkled look, comparable to a small tobacco pouch with the strings pulled tight. The same tooth in the region of the incisors is apt on first emergence to have a narrow, brittle, cutting edge, from which two or more fine spines project. The spines soon break, the cutting edge of the tooth decays somewhat more at the center than the margins, and we thus finally get the tapering tooth with concave "half-moon" cutting edge, which was first described by Jonathan Hutchinson and which, when occurring in the upper middle incisors is practically pathognomonic of hereditary syphilis.

5. Chalk lines (sillons blancs). These are equally characteristic though far more rare. They are described by Fournier as "milky" or "chalky" in color, being in fact discolorations and not erosions They should be found on the two upper front permanent teeth and are as permanent as the teeth themselves. They are horizontal, symmetrical, about 1 mm. in width and occur about midway between the gum and the crown. Their rarity detracts, unfortunately, from their semeiological value.

PEDIATRICS

ORIGINAL ARTICLES

PNEUMOCOCCAL INFECTION IN INFANCY AND CHILDHOOD*

By
GAVIN FULTON, M.D.
Louisville, Ky.

It is a well known fact that in infancy and early childhood, all bacterial infections have a tendency towards generalization but especially is this true in regard to those conditions which are due to the diplococcus pneumonia, of Frankel. It is true that the majority of primary pneumonias in children are pneumococcal, but it is also equally true that all pneumococcal infections are not pneumonia by any means.

Most of us have been in the habit of associating the two conditions, pneumonia and pneumococcal infections, in our minds as synonymous and have only quite recently begun to realize that they are not always one and the same thing, and also how very prone the latter is to generalization. We are all familiar with cases of primary lobar or lobular pneumonia which have been most malignant in character and which have run a very brief course to a fatal termination, in which we have attributed the fatality to the violence of the toxæmia, without a realization of the fact that the toxæmia was due to the rapid migration of the pneumococcus. In other words, the pneumococcal infection was general from the start, and the pneumonia was a local expression of a general condition.

It is now believed by many good men, that the pneumococcus may find its way to any part of the body, to any viscera, into any serous cavity, to any mucous membrane, and there take lodgment and begin operation as the primary factor in a local inflammation, which may or may not become general. And so in childhood and infancy we can and do have meningitis, otitis, tonsilitis, peritonitis, pleurisy, pericarditis, more rarely endocarditis, empyemia, and post- operative infections of wounds which are due to the pneumococcus and which are just as truly forms of pneumococcal infection as is pneumonia.

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The constitutional symptoms of acute pneumococcal infection are quite characteristic and are expressed in much the same groups, whether the local manifestation be in the lung, brain, peritoneum, or what not. There are present chill, high continued temperature, tachypnœa, increased arterial tension, and evidence of meningeal irritation, in addition to the physical signs of the local involvement. In cases where there is no pneumonia, or at least a very slight lobular area of consolidation, it is quite difficult and almost impossible at times to arrive at a diagnosis even after bacterial investigation. Yet there are cases that pass through a protracted course and sometimes die without a correct knowledge of the condition having been acquired. Naturally pneumonia is the most common expression of the pneumococcal infection, and it is praticularly in regard to this condition that I wish to call attention to some limited experience which I have recently had along certain lines of treatment.

Acute pneumococcal pneumonia is a self limited disease, due to the pneumococcus of Frankel, and it generally terminates by crisis in from six to ten days. When this is true in the typical cases the little patient runs practically no risk of its life except from such dangers as arise symptomatically, and which can usually be overcome by appropriate symptomatic treatment. But this is not true of all cases; we may meet with a pseudo crisis, with prompt return of high temperature, renewed chill, and an exaggeration of all the symptoms, particularly those referable to the nervous system and the heart.

Then again the true crisis may occur at the expected time and convalescence set in, but after a few hours or days a low type of fever supervenes which is sthenic in character, and the patient becomes cachexic and there is every evidence of profound toxæmia, and the patient presents a clinical picture of the so-called typhoid pneumonia. In both of the instances the pneumonia is no longer the only factor to deal with, the infection has become migratory, and has attacked other sides as well as the lungs.

Under the circumstances, above described, the ordinary routine treatment of this disease is not apt to prove entirely satisfactory, and even prompt and skillful symptomatic treatment is of no avail, and we lose a patient because we have not found an agent to combat a specific bacterial infection, which is more or less general and assaulting several sites at one.

Having had some encouraging experience with other vaccines, I decided when opportunity afforded to try the experimental pneumococcus vaccine, courtesy of Department of Experimental Medicine, Parke, Davis & Co., believing that if the practice were apace with the theory, I could carry the war into the camp of the enemy, thus following the well known strategetic principle of warfare that "he who is closest to his base of supplies has won a fourth of the battle before it begins" and thus manufacturing my ammunition (antibodies and antitoxines) inside the enemy's lines (the body of the victim). In other words, when you use a serum you are injecting a ready made antitoxin, if you use a vaccine you supply the material to maufacture antibodies and antitoxin within the circulation.

In the following reports of cases no treatment was used other than the pneumococcus vaccine and keeping the patient in the open air. All but two of the cases were hospital cases, and were kept entirely upon an open porch, except when brought in the house to receive the vaccine, bathing, etc., Cases two and six were private cases, and having no porches the patients were kept in the largest rooms in the house, with the windows thrown wide open during the entire course of the disease.

The history of the cases is as follows:—

Case 1. Baby Mae, age three months, seen at the hospital on the morning of Jan. 6th, 1911. Temperature 107, respiration abdominal, and 60 to minute, pulse 140, full and hard, face flushed and anxious, cry shrill and raucus, and a dry hacking cough present. Physical examination disclosed considerable area of consolidation posteriorly at the base of both lungs. A diagnosis double lobar pneumonia was made and the patient was given one-half bulb of pneumococcus vaccine (20,000,000) and swathed in cotton and then put on the uncovered porch to remain except when attention was necessary.

On the next morning, 24 hours after injection, the temperature was down to 99 8-10, and respiration down to 40, pulse 120, soft and regular. No injection was given and on the next day the temperature was up to 106 4-5, respiration back to 60, and pulse uncountable and not of good volume. At this time another injection was given of a full bulb (40,000,000). In eight hours the temperature was down to 99, respiration 35, and pulse 120 fairly good volume. This was the last injection given and the temperature never went over 100 again. Resolution rapidly took place, and four days after entrance the case was convalescent and had resolved itself to a simple problem in feeding.

Case 2. A. R. private family, age twenty months. Has had a subacute bronchitis for about ten days, and suddenly on Jan. 20th, 1911, developed a temperature of 104 degrees, respiration became very rapid and labored, extremities cold and cyanosed. When seen on the evening of the 20th, the temperature had gone to 105, respiration 50, pulse about 150 and friable. Examination of the chest disclosed pneumonic spots here and there throughout the lower and middle lobes on both sides. Diagnosis pneumonia by extension. One-half of a bulb of vaccine was given intramuscularly in the right gluteus, the trunk was covered with heavy cotton and wool shirt and all the windows left wide open.

The next morning, twelve hours later, the temperature was down to 101 1-5, pulse 140, but of better volume. Respiration about the same. By 9 P. M. twenty-four hours after injection, temperature was again 105, pulse and respiration about the same. The vaccine was not repeated at the time. On the following morning patient looked desperately ill. A whole bulb (40,000,000) was given, after which the temperaure gradually went down to 100. Pulse slower and stronger, and the whole general appearance much better the next day. This condition continued for about four days. Morning temperature 100 to 100 4-5 and evening temperature 101 to 102. When the third and last dose was given, the temperature was normal thirty-six hours afterwards and the patient went on to an uninterrupted recovery. At no time was any medicine given, and the only other procedure was the irrigation of the bowel twice daily with normal saline.

Case 3 Lucy H., age 4 1-2 years, entered the hospital two weeks after an attack of lobar pneumonia. Three days after the crisis, which occurred on the 8th day, there began a graudal elevation of temperature which partook of the character of typhoid. The patient was listless, and had no appetite, coated tongue, irritative diarrhœa, abdominal tenderness, but no distention or pain elsewhere. When seen April 20th, 1911, the above condition was unchanged, and the temperature was 102 2-5, pulse 130, respiration 40. A diagnosis of pneumococcal toxæmia was made and the patient was given one bulb of vaccine. Two hours after there was a slight chill, cold extremities, and some nausea. Temperature went up to 105, four hours after injection. Patient was given saline irrigation at 70 degrees and repeated in three hours at 90 degrees. In forty-eight hours after the first and only injection, temperature was normal and never went over 99 again. Convalescence was rapid and uninterrupted and patient left hospital ten days after entrance. This was the only case in the series in which there was any decided reaction.

Case 4. Robt. B., age 18 months, seen May 16th 1911, at hospital with consolidation at base of right lung. Temperature 103, respiration 52, pulse 140. A diagnosis of lobar pneumonia had been made three days before I saw patient at hospital. This was confirmed and one-half of a bulb of vaccine given on the evening of the 16th. The next morning the temperature was 98 8-10, respiration better and the whole appearance improved. On the second day after the injection, temperature was normal and the child so much better that the mother asisted upon taking it home, after which I saw it no more, but was informed that it made a rapid and satisfactory recovery.

Case 5. This case was similar to case four with the exception of age. This boy was seven years old and at no time had a temperature over 102. He was not very sick, but had a small area of consolidation on the left side about the middle third posteriorly.

He was given one full dose of vaccine, ran the course already described and left the hospital on the sixth day after entrance.

Case 6. Baby D. age ten months, seen in private practice. Bottle fed baby and well developed rhacitis. Had an acute bronchitis lasting three weeks. On Feb. 10th, 1912, the temperature suddenly ran up, respiration became more rapid and difficult and the child was very much cyanosed. A diagnosis of secondary pneumonia was made and the vaccine advised but this was refused. The child was wrapped in cotton, and kept in an open room and symptomatic treatment started. Strychnine, whiskey , and Brom. of Ammonia. On the fifth day after the beginning of the disease the patient was in collapse and apparently dying. Consent was obtained to use the vaccine, and one bulb was given. The temperature continued to rise from 103 1-2 to 105, and late in the evening death ensued. Whether better results would have been obtained by the early use of the vaccine is uncertain, but I will always regret my inability to try it.

The above experience, particularly Case No. 6, in connection with more recent observations, and the study of the results and conclusions of others upon this subject, lead to the belief that this is a legitimate line of treatment, and that the pneumococcic vaccine is of value in the treatment of pneumococcal infection, whether it be in the lung or elsewhere. Further-more its value is increased or decreased according as to whether it is used early or late.

In all my cases the stock vaccine experimental (P. D. & Co.) was used and I have no personal experience with the autogenous vaccine. Theoretically, it would seem the latter would afford the better and more scientific results, provided in the first place, time were no object and the second place, that it could always be made by a skilled bacteriologist who prepared it properly, and who is capable of estimating the proper dose in the individual cases. The second clause of this is more often true than the first. It is easy, I am glad to say, to find the competent bacteriologist but very frequently we have not the time to spare. Then again, what is true of the colon bacillus may be equally true of the pneumococcus strain, viz—a rapid tolerance is established for an individual vaccine, and consequently a series of autogenous vaccines would have to be made which would not only take time but would cost much money.

The stock vaccine could hardly be subject to this objection because of the multitudinous source of supply from which the raw material of the manufactured article must come.

I do not wish to go upon record to-night as having presented a positive specific for a very varied group of conditions, but I do believe that the vaccines have come to stay, and that the pneumococcus vaccines will earn a place for itself in the treatment of pneumococcal infection.

PYELITIS IN CHILDREN*†

By

GEO. F. STILL, M. A., M. D., F. R. C. P.

London, Eng.

The recognition of pyelitis in childhood is usually easy, and yet it is overlooked again and again simply because the possibility of its occurrence is forgotten and the urine of an infant is seldom examined. Unrecognised acute pyelitis in infancy gives rise to prolonged severe fever, with profound constitutional disturbance, which may be fatal. Recognised and treated appropriately often subsides in a few days, and even if symptoms persist for a time they quickly become less severe, and generally soon yield to treatment. The following is a common clinical picture.

A female infant, under the age of 12 months, is suddenly taken ill. She seems hot, and the temperature is found to be 103°. Day after day the temperature ranges from 101° to 105°, she is fretful and miserable, crying out suddenly as if in pain, or perhaps drowsy and inclined to twitch slightly in the fingers and eyelids. Either at the moment of onset or perhaps later she has been noticed to turn blue and old, or has actually shivered. Vomiting is either absent or occurs only occasionally. The stools, though perhaps not loose or costive, are nevertheless not quite normal. There has been nothing to call the mother's attention to the urine, nor is there any evidence of pain. Careful examination fails to reveal any definite signs; possibly the abdomen is a little full, and there seems to be some vague discomfort on palpation. No explanation of the condition is forthcoming until the urine is examined, when pus and bacteria are found.

Sex.—Pyelitis is almost but not quite exclusively an affection of females. In 26 infants under one year, only 3 were boys, and amongst 14 older children there were no boys. This predominance of girls is consistent with the view that the infection of the urinary tract ascends. The vulva is soiled with fæces and the bacteria pass through the bladder and ureter to the kidney.

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Age.—The age-incidence also fits this theory. In 40 cases 26 children were under the age of 12 months (the youngest was 3 months) and 2 were under 2 years. Of the remaining 12, 4 were between 2 and 4 years, and 8 were under 10. The disease is much commoner in infants than in older children, because soiling of the vulva with fæces most easily occurs during the age of diapers. Further, the bowels have often been loose before the onset of pyelitis, or if there had been no diarrhœa, the stools have been unhealthy in some way, green, curdy, or offensive, sometimes only constipated. In harmony with all these facts the bacillus coli is found to be the exciting cause in the large majority of cases. Only rarely is the Proteus bacillus or some other microbe found. Evidently the infection comes from the bowel. The route to the kidney may in some cases be via the blood, or even directly by contact. At any rate pyelitis does sometimes occur in boys, and shows symptoms suggestive of a blood infection.

Symptoms.—A striking feature in most cases is the abruptness of the onset. In one case the infant was being dressed one morning, apparently quite well, when she "suddenly went blue, and seemed cold and faint," From that time she was acutely ill with high fever. Another infant had gone out seemingly in perfect health in the perambulator, when she suddenly became acutely ill, and was thought to have a convulsion. She was brought home and found to have a temperature of 104°, which was explained only when the urine was examined four days later. In some cases the supposed convulsion is a genuine rigor, sometimes an attack in which the infant goes cold and blue, but does not actually shiver. Dr. John Thomson has laid stress on the importance of rigors in the diagnosis, and pointed out that they are extremely rare in infancy apart from acute pyelitis. Without any actual shivering, frequently during the course of acute pyelitis, especially at its onset, an infant several times turns blue and cold, and seems collapsed. These attacks occur in such a large proportion of the cases that the combination of an otherwise unexplained fever in an infant with attacks of blueness and collapse is highly suggestive of acute pyelitis. Genuine clonic convulsions occasionally occur at the onset or later.

To one who has seen many cases the appearance and manner of the infant will often suggest the diagnosis. The extreme misery and restlessness is striking, unless indeed owing to the severity of the infection the infant has already fallen into a drowsy, almost comatose state. The complexion is pale and earthy, the skin is hot and dry. When with such a condition it is said that nothing has been found to account for the high fever, pus will probably be found in the urine.

But in some cases the abdomen is fuller than normal and the infant seems to be discomforted more than is natural by gentle palapation. In older children definite tenderness is sometimes found over the front of the abdomen, simulating appendicitis.

Pyelitis may assume the guise of acute cerebral disease: the child drowsy or even semi-comatose, there is muco-pus on the cornea, the neck is stiff, the head perhaps definitely though slightly retracted. There may even be a squint and some slight convulsive twitching of the limbs. Then the case is often mistaken for meningitis.

The temperature is puzzling so long as the disease remains unrecognised. Day after day it is 103° and 104°, and often reaches 105°. Usually it does not show any sign of abating for several weeks. But under proper treatment it falls generally within 2 or 3 days to a much lower level, if not to normal, but it is very apt to rise again after a few days.

The one essential in the diagnosis is the examination of the urine, and this is generally neglected. "It is a baby," says the doctor, "so one can't get the urine." The object is to ascertain whether pus corpuscles are present. The urine must therefore be obtained by some other method than by catching in absorbent wool or other material which would strain off the pus cells. A simple plan is to let the infant lie for a few hours on waterproof mackintosh until some urine is passed. A little arrangement will usually secure that sufficient shall collect.

Several times the writer has been told by the doctor that he had found the urine "clear and acid, with no albumin," although further examination showed pus and albumin. Or the urine was produced in a white chamberpot, with the remark, "See, it is perfectly clear!" whereas directly it was poured into a clear glass bottle it was obvioulsy slightly turbid. Again, the doctor says there cannot be pus, for he found no albumin. But he used the nitric acid test, and on using the boiling test, with subsequent addition of a few drops of acetic (being careful to fill the test-tube three parts full and to boil only the upper half-inch so that the slightest turbidity may be seen by contrast) one is able to show that there is albumin, albeit extremely little, corresponding to the very small amount of pus found in many of these cases. The use of the nitric acid test is a common cause for overlooking traces of albumin in urine.

Again, even when the urine has been found to contain a trace of albumin, there has been so little cloudiness of the unboiled specimen, and such an apparent absence of deposit, that the doctor has not thought it necessary to examine it microscopically. It must be remembered that the amount of pus is generally microscopic, often only six or even fewer pus cells are to be seen in a field (under a one-sixth objective) when the shaken-up urine is examined, and this even when the symptoms are severe. It is an advantage to examine the shaken-up urine rather than urine which has been allowed to stand, or has been centrifugalised. Examination of a deposit gives no idea of the relative amount of pus present. The deposit obtained by standing or centrifugalisation from a urine which would show 8 cells to the field in the fresh or shaken-up specimen, does not differ from one which would show 30 cells, so that a valuable standard of comparison is lost. This principle applies not only to pyelitis but also to other urinary conditions, such as nephritis and hæmaturia. The centrifuge is often rather a hindrance than a help; we want to know not only that there are casts or blood-cells, but how many.

The urine of pyelitis before treatment is acid, usually very acid, and commonly shows (under one-sixth objective) an average of about 6-30 pus cells per field, and here and there a group of perhaps 10 or 12 stuck together. Usually, but not always, bacilli can be seen either singly or in clumps, and in the large majority of cases prove to be B. *coli*.

There are extremely misleading cases in which the diagnosis has to be made after the disease has become chronic. These come to the doctor under the guise of marasmus. A miserable fretful infant is brought solely for wasting. At first sight there seems to be enough to account for the condition: the infant takes food badly, and the stools are unhealthy, and no one has doubted but that the trouble was simply digestive. The extraordinary fretfulness and misery, however, may suggest something more, and inquiry elicits the fact that there was some febrile illness, it may be months ago, or perhaps there has been a good deal of irregular fever, which has been attributed to teething, influenza, or what not. In older children also the chronic stage may show itself as a wasting disease. A wasted girl, aged 9 years, was brought for supposed phthisis. But the temperature chart was unlike that of phthisis; there were bouts of fever alternating with longer periods of normal temperature, and the child was more cachectic than her doubtful pulmonary signs would warrant. Examination of the urine showed large numbers of puscells and Coli-form bacilli.

Acute pyelitis in older children is easily overlooked. Not only are there the same fallacies in the examination of the urine as in infants, but the symptoms are apt to be much less severe, the temperature is lower, and there is less constitutional disturbance. As in the younger children there is rarely any local symptom or disturbance of micturition to call attention to the urine. The child is feverish, complains of headache, perhaps has a rigor or is sick, and sometimes there is definite pain in the abdomen, which may suggest appendicitis, as in the following case:

A girl, aged 8 1-2 years, was admitted to hospital on March 17 for pain in the right side of the abdomen and high temperature. These symptoms began suddenly on March 14. She was very drowsy, with some headaches and marked rigidity of the right side of the abdomen. Appendicitis was suspected, but examination of the urine showed this to be acid with many pus-cells and Coli-form bacilli. Under potassium citrate the fever rapidly subsided, and all rigidity and pain had almost disappeared by March 20, when she suddenly became ill again, with much abdominal pain and rigidity now on the *left* side. Potassium citrate, 22 1-2 grains "every 2 hours when awake" quickly relieved these symptoms, and she apparently completely recovered. But on April 23 there was still "an occasional stray pus-corpuscle" in the urine, and after remaining apparently quite well till Aug. 3 she again complained of pain in the abdomen, and was found to have fresh pyelitis, which again subsided under treatment.

This case seems to show that pyelitis may remain limited to one kidney, at any rate for a time, and that recurrence of fever and other symptoms when the child seems on the road to recovery, may indicate infection of the previously sound kidney. It illustrates also the liability to a subsequent attack of pyelitis if treatment has not rendered the urine entirely free from pus and bacteria.

Diagnosis.—Pyelitis is mistaken for several diseases. The most common is tubercular meningitis, and indeed some of the nervous symptoms of pyelitis are scarcely distinguishable from those of meningitis, but the high fever and acute onset are unlike tubercular meningitis, and more resemble cerebro-spinal meningitis, which had been suspected in some of the cases. The prolonged fever without physical signs leads to the diagnosis of typhoid fever, but again the acute onset should throw doubt on this diagnosis. The sudden onset and sharp fever have been attributed to a latent pneumonia, whilst influenza, gastro-enteritis, or dentition was thought to explain symptoms in other.

These mistakes can arise only if the urine is not properly examined. There are other questions of diagnosis which are less simple. A girl with some fever and headache is found to have pus in the urine, but she has some vulvo-vaginitis. Is there pyelitis or is the pus merely an accidental contamination from the vulva? The presence of bacilli in the freshly passed urine may help, for vulva discharges are almost always due to cocci of some sort, not to bacilli. But it may sometimes be necessary to obtain a catheter specimen (a thing always to be avoided in the case of children if possible). Usually the effect of alkalinisation of the urine will be the most satisfactory solution.

The distinction between tuberculous pyelitis and Coli pyelitis is by no means easy by ordinary clinical methods, especially when the pyelitis has become chronic. The tuberculous affection is not likely to show the sudden acute onset and severe constitutional symptoms of the Coli disease, and blood is often present in tuberculous urine, whereas it is rarely, if ever, found in the urine of Coli pyelitis. Bacteriological investigation of the urine may be necessary.

It is difficult to account for the apparent absence of cystitis in most cases of Coli pyelitis; one would have thought the bladder must inevitably be affected. Nevertheless straining or discomfort in or frequency of micturition is rarely present.

Prognosis.—To anyone who is not familiar with the disease the condition of the infant stricken with acute pyelitis may seem well-nigh hopeless, but the prognosis generally is good. In

40 cases only 3 were fatal. Examination of the urine, months after the acute attack, shows that a trace of pus sometimes persists in spite of treatment during the acute stage. Probably this indicates insufficient dosage or too short duration of treatment; in such cases there is occasionally a recurrence of acute symptoms after months of apparent good health. As a rule, under efficient treatment, recovery is not only rapid but complete.

Morbid Anatomy.—In 3 fatal cases the writer found no gross change in the pelvis, but spreading up from the pelvis into the pyramids yellow streaks ran towards the cortex parallel to the straight tubules. This purulent infiltration in the cortex formed small irregular yellow patches, some of which bulged slightly on the surface of the kidney. In some parts this infiltration was surrounded by narrow zone of inflammatory hyperæmia. It is possible of course that this invasion of the pyramids and cortex may occur only in fatal cases.

Treatment.—The treatment of acute pyelitis is in most cases as satisfactory as it is simple, since Dr. J. Thomson first emphasized the importance of alkalinisation of the urine. The best drug for this purpose is potassium citrate, but its value depends entirely upon proper frequency and dosage. It is useless unless sufficient is given to render the urine alkaline, and its effect is only transitory unless the alkalinity is maintained night and day continuously for at least a week or ten days. As a preliminary dose 5 grains is to be given every 2 hours by day and every 3 hours by night. This dose will do for any age in the first year of life. The nurse must obtain the urine as often as possible, and test immediately after it is passed with litmus paper. The only guage of efficiency of the dosage is the reaction of the urine; so long as this remains acid the fever and general symptoms are likely to persist.

It is surprising what large doses are often necessary to keep the urine alkaline, 8 or 10 grains every 2 hours may be only just sufficient in an infant, and a child of 3 years may require 20 grains or even more every 2 hours. But there are limitations. Large doses, e. g., 10 grains or more every 2 hours for an infant of 6 or 8 months, are apt to disturb digestion and to set up diarrhœa, which is a troublesome complication. When this has happened, bi-carbonate of sodium or potassium, in doses of 5-10 grains every 2 or 3 hours, may maintain the alkalinity already induced by citrate without its ill effects.

When the temperature falls, as it usually does after 2 or 3 days' treatment there is a great temptation to reduce the dose or frequency of the potassium citrate. But if this is done the temperature quickly rises again, and the child seems as bad as ever until the urine has again been rendered alkaline. The potassium should be continued at the efficient dose, i. e., that which renders the urine alkaline, every 2 hours by day and every 3 hours by night, for at least 10 days after the temperature has become normal. Every day or two the number of pus-cells in the urine should be counted to ascertain the degree to which the pyelitis is subsiding. This is easily done with sufficient accuracy for practical purposes by examining a drop of the shaken-up urine under a sixth objective, and taking the average of the number of cells in half a dozen fields.

Usually the diminution in the number of cells is appreciable after 2 or 3 days, and often it is possible to observe also a decrease in the number of bacteria present (the *B. coli* is readily seen with a sixth objective). No doubt the most scientific method of determining the proper time to discontinue the alkali treatment would be repeated bacteriological culture from the urine, but this is seldom practicable. The disappearance of the pus-cells is an easier criterion. To disregard it may lay the seeds of future trouble, whereas if the pus-cells disappear before discontinuing the alkali recurrence may be prevented.

There are cases in which the alkalis fail. This sometimes occurs when the pyelitis is due to some organism other than the *B. coli*, e.g., the Proteus bacillus, but it also occurs with *B. coli*, though rarely. When it does urotropine occasionally does good; 1 1-2 grains may be given every 4 hours to an infant of 6 months and 2 1-2 grains at 12 months. Salol also is useful, 1 grain every 4 hours at 6 months. Further, it is a useful adjunct to the alkali treatment when the unhealthy condition of the stool threatens further Coli infection.

In obstinate cases—and there are some in which in spite of all drugs the pyuria and irregular temperature persist—vaccine treatment, if possible with an autogenous vaccine, may be tried. As initial dose 5 millions may be given subcutaneously to an infant 6 months old, and a week later 8 or 10 millions, which may be increased after another week to 15 or 20.

Whatever treatment is used stimulants are often necessary, especially in the acute stage, when large doses of potassium citrate are being given, as whether from this drug or from the disease, the child is often much depreseed. Ten or 15 minims of brandy every 4 hours may be necessary.

If there is any tendency to convulsions, phenazone, ½-1 grain for a child of 6-12 months, should be given with 2 or 3 grains of sodium bromide, in a mixture separate from the potassium citrate, so as not to interfere with the frequent administration of the latter.

SYMPTOMS DIAGNOSIS AND TREATMENT OF TORTICOLIS

Clinical Lecture Delivered at Charity Hospital, Paris
by Prof. Mauclaire.

Translated by Emil Burner, M. D. New York City,
(From Progress Medical.)

The first patient is a child aged three, that I had occasion to examine sometime ago before you.

At birth, this child was in good health, but the labor had been particularly long and tedious, and the head had been for a long time in the inferior strait, and on the Perineum, so that it was necessary to terminate the labor by forceps delivery.

During the first weeks following birth, the parents saw that from time to time, the head of the child would lean to the right side. This at first was only a tendency, accentuated itself little by little, so that at the age of six months, deviation became permanent. This inclination became complicated in a marked manner, by the face rotating to the left. The child, a little girl, was brought to me at the age of three years. At that time she had typicalTorticolis.

Simple inspection shows that the head leans to the right side, the face looking towards the left, the chin turning to the left side. When looking at the little patient face to face, you see that the two eyes are not at the same level. The right eye is lower than the left. The height of the neck is shortened to the right, the skin forming very marked transversed folds. At the inferior portion of the neck, there is a sort of contraction due to the retracted Sterno-Cleido-Mastoid muscle. The right shoulder is higher and more prominent than the left. The Thorax is more prominent on the right side than on the left. By palpation, the reduction does not occur easily. When you try to reduce the wry neck, you feel the Sterno-Cleido-Mastoid become tense and hard. The sternal bundle stands out very prominently. You cannot feel any localized induration. There is no callousness in the thickness of the muscle. It is the whole muscular body in its entirety which is tense. There was accompanying these local symptoms, a slight deviation of the cervical vertebræ. Radiographs were not taken. The functional disturbances were slight, there was simply a slight discomfort, due to the rotation of the head. The general health was good. We have not found any trace of Syphilis and from the spinal column or the throat, nothing abnormal was noted. So, that in this little girl, the diagnosis of chronic wry neck by mucsular retraction, was evident.

Last year, in the Male Ward, we had observed a case of acquired wry neck. The patient was admitted for a lesion of the foot. One day following a cold, he had tonsilitis. This was followed by swollen glands in the region of the Sterno-Cleido-Mastoid. At the same time the muscle became contracted, giving to the patient, the characteristic attitude. The head was bent to the right, the face looking at the opposite side. It is to be noted here that the contraction of the muscle was accompanied with very severe local pain, which did not exist in the little girl with the congenital Torticolis. By palpation the whole muscular body, and not only the sternal bundle, was contracted. Examination of the spinal column showed no trace of Arthritis. This was a case of Acute Torticolis, caused by the spasm following tonsilitis, and adenitis. As soon as the tonsilitis quited down, the symptoms of the wry neck diminished and healing followed.

The third case is very serious, and diagnosis, is far from being easy, as you will see.

It is a young man eighteen years of age, (mason). Family history and personal history, particularly very good, no tuberculosis in the lungs or glands.

Last September, the patient found that his right leg was a little weak. At the same time showed symptoms, of stiffness. He was admitted in the Hospital in the service of Dr. Legry, October 16th. The left leg begins, after about fifteen days to become weak, and the patient shows functional impotence of the two inferior members.

He was then referred to the Surgical Ward, with a diagnosis of Pott's Disease. Examination of the spinal column showed nothing abnormal, at the level of the lumbar and dorsal regions, but at the cervical region, by inspection, an extraordinary deformity is apparent. The neck is shortened but not twisted. By palpation you feel an "S" shaped deviation of the cervical vertebræ, especially at the lower part. From the third cervical, to the second or third dorsal, the spinous processes were deviated to the right, forming to the touch, a regular concave curve. The largest part of which was at the level of the fifth, sixth, and seventh cervical. There was a sort of torsion of the spine, with a curve of compensation. If the neck showed palpation at the right, you felt lateral rotation of the spinal column, palpation of the pharynx, showed that the vertebræ were deviated by conpensation curve. There were no painful spots on the level of the spinal processes or the body. Sub-occipital articulations were free. The movement of the head on the first two cervicals were normal. The ribs were inbricated, which occurred on account of the crowding which occurred at the level of the sixth and seventh cervicals. In palpation the free side of the neck on the left, you felt a mass at the level of the subclavicular space. There was no abscess any where else, neither on the cervical nor the dorsal region.

Radiography shows at the level of the cervical vertebræ a right lateral deviation of the bodies of the vertebræ as well as a torsion upon themselves. The spinal symptoms consisted of almost complete paralysis of the lower members. It was impossible to lift the foot from the bed. Reflexes were exaggerated, Babinsky sign very sharp. Ausculation of the chest showed nothing. There were no pulmonary lesions. General condition was good. We have put this patient in a plaster jacket. At the end of eight days, he began to be able to make a few movements of rotation on the level of the inferior members. At the end of a month paralysis is somewhat diminished, but it has not disappeared, the spasm persists. There is still no abscess. For my part, I believe that we have to deal with arthritis deformans of the spinal column, which by its localization has produced compression of the cord with functional impotence, and an "S" shaped deformity of the vertebræ.

I have observed a similar case at the Necker Hospital some fifteen years ago. It was a man fifty years of age, in which for five years, there was a progressive deviation of the head. It was bent to the right. The chin deviated to the left and raised. There was no trace of deforming rheumatism either in the upper or lower limbs. Examination showed no contraction of the Sterno-Cleido-Mastoid. By palpation the total deviation of the cervical vertebræ could be felt.

Radiography was not made. Movements of negation and affirmation, were normal, which showed that the Atlanto-Occipital Articulation, and the Atlanto-Axoidal Articulation were intact. The lesions were localized, especially at the level of the lower part of the cervical column. There was no abscess. There was no medullary lesion. No functional impotence of lower limb. The application of plaster jackets, was not followed with any benefit, because the lesion was old, and the spinal column was ankylosed in a bad position. These observations show that there are several varities of Torticolis.

First, we have Chronic Muscular Torticolis, by retraction, which we find in children, more frequently in girls. Does this represent a true congenital Torticolis?

Several authors believe, and it is the opinion most generally accepted, that the affection is not the result of an intra-uterine lesion, but true vice of conformation, analogous to talipes varus for example; but that it appears after birth, and is due often to the traumatism incurred during difficult labor. For instance, the little girl which we have examined, had nothing at birth, but a slight weakness on the right side of the head. It was only after birth that the head began to lean to the right and little by little the deformity became chronic and definite. The Torticolis by retraction may follow too, in some cases, after vicious position or attitudes which may be voluntary or involuntary. Some ocular affections, such as Diplopia or Astigmatism may by the vicious position of the head which they cause, bring about the definite retraction of the Sterno-Cleido-Mastoid. The wry neck by retraction is more especially to be found on the right side.

Pathology—The Sterno-Cleido-Mastoid is retracted at its inferior portion, when the body of the muscle is examined it is found that it is firmer than in the normal state, fibrous in appearance or tendinous. There are some lesions of primary or secondary Sclero-Myositis. The substance of the muscle is choked by proliferation of fiberous tissue. Aponeurosis is equally thickened and retracted, and it is also filled with fibrous tissue. Some authors believe that many of these sclerotic myositis are syphilitic myositis (Couvelaire). This opinion is plausible, because we know that syphilitic myositis of the adult is usually found in Sterno-Cleido-Mastoid. The internal and external messeter and the biceps of the arm, while in the child, it is the same, and amongst the muscles, the most often attacked by syphylitic myositis, the Sterno-Cleido-Mastoid, is the first. Another inportant fact, is the irregular distribution of the lesions in the two bundles of muscle. In most cases, three times out of four, it is the internal bundle, sternal, which is felt to be hard and retracted. When the two bundles are attacked, the sternal is almost always the strongest to be affected. Finally, lesions by continuity have been noticed, particularly the sheath of the vessels is thickened, hardened. The retraction of the sheath of the vessels may bring about compression of the jugular, the internal carotid, and the nerves of the neck. That is how the atrophy of the face and of the cranium, on the diseased side is explained, such as are found often in cases of chronic Torticolis, and which finally brings about facial and cranium asymetry, as shown by all observers. In muscular Torticolis, the bony lesions of the skeleton are rare, when they exist, they are so trifling in comparison with the muscular lesions, and of course in the majority of cases we only have to cut the Sterno-Cleido-Mastoid, to reduce the deviation.

Diagnosis:—As a rule it is easy to diagnose Muscular Torticolis. Still there are some difficult cases where differential diagnosis is necessary; Sub-Occipital Pott's Disease.

This is a diagnosis that it is important to pay a great deal of attention to, because error in this case would be a great prejudice for the patient. I will cite the case of Bouvier, who had the frankness to admit that he took, for a simple Torticolis, a true case of Sub-Occipital Pott's Disease.

In the Sub-Occipital Pott's Disease, patients suffer a pain at the nape of the neck, violent pain, spontaneous or upon pressure, and localized on the first vertibræ. The movements of affirmation and negation, lateral movements, cannot be made because the articulation of the head, with the spine, is immobilized, by a definite Ankylosis. On the contrary in the muscular Torticolis, mobility of cervical vertebræ is limited, but still there. Not only the movements of flexion and extension, but the lateral and as a capital sign, rotation itself, are preserved. Finally in Osteo-Arthritis of tubercular origin, palpation shows the sensation of pastiness at the level of the neck, and the pharyngeal palpation gives the same sensation. Now Radiography would be of great value for diagnosis in this difficult case. You will also have to differentiate between Torticolis by retraction, and Arthritis Deformans of the spinal column, which may simulate it, and I have reported you two very curious cases. Here also Radiography is a precious auxiliary for diagnosis. You will recognize without trouble, Cicatricial Torticolis, in which the deviation is due to the retraction of scars about the neck, scars caused by extensive loss of substance, such as burns, or tubercular abscesses, etc.

You will also easily differentiate the acute Torticolis with temporary contraction, which begins suddenly after Tonsilitis, or Adenitis, or Rheumatic or Pseudo-Rheumatic Arthritis. It will always be necessary in these cases, to use the Pharyngael touch. Another variety is the spasmodic Torticolis or Tic-Douloureux, upon which Mr. Cruchet of Bordeaux, in a recent work, has drawn attention. Here there is no contraction or muscular retraction but the affection is characterized by rhythmical contractions. and imitative suggestion plays an important role in Etiology. Finally, certain ocular lesions or even simple error of refraction may occasion a Torticolis that Cuignet has reported sometime ago, and to which he has given the name of Ocular Torticolis. Its diagnosis is rather easy. Prognosis of muscular Torticolis is not very grave. As a rule the lesions are not very intense by the deformity itself, tends to become accentuated, and left alone may involve the face and cranium to the point atrophy, may cause vertebral deviations, and sometimes ocular troubles, so that it is necessary to treat the Torticolis as soon as possible.

Treatment: Treatment is very simple. Several methods have been proposed. In the case of Torticolis, by permanent contraction in the child or nursing, massage has been advised. I do not believe that massage alone may overcome a strong contraction. Orthopedic apparatus, such as plaster jackets, or bandages which prevent rotation, have also been advised, as for instance the Volkmann's apparatus for continuous extension, which is recommended by the German surgeons, but my opinion is that Orthopedic apparatus as well as the continuous extension apparatus, are simply adjuvant methods which are useful, and indicated only in order to maintain the reduction obtained by some other method. The real treatment is Tenotomy. This is to be performed at the Sterno-Cleido-Mastoid. The section must be made on the sternal portion of the muscle. Two methods are in use, sub-cutaneous Tenotomy and open Tenotomy. In the sub-cutaneous Tenotomy, the jugular vein is first located, and the section of tendon is made from before backwards, or from its deepest portion to the surface with a small Tenotomy knife. The cut must be horizontal.

From before backwards, or from backwards to the front or inversely, it really does not matter. Some surgeons advise the oblique incision to lengthen the muscle.

It is said that subcutaneous Tenotomy is a rather blind method, which has given rise, even in the hands of eminent operators, to accidents and failures. Robert severed the external jugular, Volkmann, wounded the internal jugular. These cases are rather exceptional. The fear of such accidents has made the open Tenotomy the favored method with surgeons. This is the easiest to perform, and does not expose the patient to the above accidents. Straightening occurs more rapidly and easier than with subcutaneous Tenotomy, but this operation, has a very great inconvenience, the scar. This scar always visible, even after perfect union, may become in certain cases, very exhuberant, much like a Kheloid. So, in the light forms, we will use subcutaneous Tenotomy, and if the reduction is not obtained, open Tenotomy will be reorted to, even though it will form a scar. A good precaution is not to make the section complete with the knife, but to finish it by tearing with the thumb the retractions of the sheath of the muscle, which is sometimes retracted on its own account.

The straightening process will be maintained by the usual orthopedic appliance. An apparatus which is usually employed, and which gives good results, is the following:—The head and the thorax are surrounded by two large bands of adhesive plaster. These bands are brought together by means of a rubber tube which keeps the head constantly bent on the side opposite th deformity. Then massage and Swedish movements must complete the treatment.

In some cases of Torticolis that are very pronounced with extensive myositis, Volkmann has advised, the resection of a fragment of muscle, but this, is used in rare cases. The treatment of acute symptomatic Torticolis, is to remove the cause. Give Salicylates if rheumatism is the cause. Treat Tonsilitis or Adenitis, finally treat Vertebræl Arthritis.

The treatment of Spasmodic Torticolis consists in therapeutic suggestion. Section of the spinal nerve has been advised in this case, but this intervention is frowned at, because of the Paralysis which follows.

The treatment of Cicatricial Torticolis, consists in resecting the scars by auto-plastic methods, by the Italian method, or by grafts.

A good method consists, when possible, in placing a band of healthy skin against the cicatricial tissue. Usually by this means, retraction is avoided. Berger recommends to cut a vast quadrilateral section, rather long, behind the neck, and descending obliquely below and outwards of the scapular region. This section is dissected and maintained only by a pedicle, which forms its Postero-superior extremity, and is brought forward in the shape of a half a cravat, on the spot to be covered.

I have seen very good results obtained by this method. In osseous Torticolis, the plaster- jacket is to be applied, but there will be some chance of success if the lesion is not very old, and if ankylosis has not been established. In the two patients of which I have given the history, the lesions were already too old. Of course, I believe that therapeutic measures are powerless for those vertebral deviations that are progressively deforming.

THE NATIONAL IMPORTANCE OF EUGENICS.*

BY FRANK I. DRAKE, M. D.

Madison, Wis.

To every public-spirited citizen, the welfare of the nation is of prime importance. When duty calls, whether in the exigencies of war, or in the stress of a San Francisco earthquake and fire, or in the pursuit of the arts of a peaceful life, he responds with true and loyal service. Our national optimism, our sense of security from foreign foes, our material prosperity, obscure the glare of our national defects, and veil our eyes to the light of our domestic needs. When our swords are beaten into plowshares, and our spears into pruning hooks, there is still important work to do. Peace has its unsolved problems no less intricate and serious than are those of war and disaster; and they must be met with no less fortitude, persistence, and careful study.

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The present agitation in favor of woman suffrage, the campaign against "Special Privilege," the crusade against tuberculosis and the venereal peril suffer a total eclipse by the magnitude of our physical and mental deterioration in their relation to the public welfare. Indeed, within the body-politic are the elements of disaster which threaten its very existence—a cancerous growth, if you please, which is slowly but surely eating its way to the vitals of national life. Scarcely a report on vital statistics reaches us from Europe that does not call attention to the falling birthrate of the fitter stocks, and frequently reports on the increasing prevalence of insanity and feeble-mindedness meet our gaze. In fact, civilized countries the world over are sounding the alarm and are casting about for some means to avert the impending disaster.

The conditions, as they exist within the borders of our own commonwealth may be considered fairly representative of the nation at large. We have in this state 11 state institutions, 1 semi-state institution, 33 country asylums, 71 jails and 45 poor-houses. The aggregate population of these institutions at the close of the year, June 30, 1910, was approximately 12,000 souls, to say nothing of the thousands of epileptics scattered over the state for whom no state provision has as yet been made, and the thousands or more feebleminded who are unable to gain admittance to the already congested home at Chippewa Falls. Our statistics for the insane covering, as they do, a relatively large period of time are more nearly complete than are those for any other class of defectives. They show an increase from 1 to 385 of population in 1903, to 1 to 357 in 1910, at a total annual cost to the state of $1,000,000. The testimony of all authorities, the world over, is to the effect that all forms of degeneracy are increasing in a like proportion. Eugenists claim that this is due, largely, to the dominant fertility of the unfit stocks, and to the fact that our improvement in hygienic and sanitary conditions is checking the natural purification of the state.

When we consider the possibilities for evil that must come to this nation in consequence of an unrestrained license to marry and propagate offspring, we look in vain for any concerted effort to check this national disgrace. True, here and there are spasmodic efforts at segregation, and sterilization, and more stringent marriage laws, but nothing, I say, in the way of a well-planned effort at prevention. I do not lose sight of private philanthropy. For well nigh two thousand years many good men and good women following the exhortation of St. Paul to put on the mantle of charity as the bond of perfectness, have traveled up and down the earth asking alms to relieve the distress of the unfortunate. They have accomplished many desirable reforms, too, in providing better homes and asylums, better hygienic and sanitary conditions, better educational facilities. In a word, they have bettered the environment, but have they done aught to prevent the propagation of these degenerates? Have they done aught to heal this festering national sore? Look through the thirty-eight volumes issued by the Annual Conference of Charities and Corrections, and you will find the dominant note of all their activities to be more charity, more reform, more education. And so under the guise of charity, reform, and education our statesmen vote more tax to provide more homes and hospitals, more jails, more schools and they may continue so to do to the end of time with no better results than have been heretofore attained. The road traveled by these philanthropists is easy, alluring, hopeful, and the scenery spectacular, but their efforts for the past twenty centuries have demonstrated conclusively their utter inability to effect racial purification in any environment however sanitary, or intellectual, or moral it may be, and the race can be purged in no way that fails to take account of the selection of parentage. Homes and hospitals however sumptuous their appointments, however skillful their physicians must ever fail to cure the innate tendency to insanity; reformatories and prison however sanitary their construction, however beneficent their administration must ever fail to reform the inborn criminal; and school and colleges however excellent their teachers, however complete their equipment must ever fail to educate the idiot. Nature can never remove Nature's stamp of inferiority. The time and money of modern philanthropy are expended wholly in the conservation of the unfit; what the nation needs, alike from an economic humanitarian view-point, is the prevention of their propagation. "Millions for relief, but not a dollar for prevention has been the policy of American philanthropy" said Governor Wilson, and this excessive burden of taxation to improve the environment of this vast horde of defectives falls heavily upon the shoulders of the fit and the competent.

A nation is not a mere fortuitous aggregation of individuals, but rather is it a living throbbing organism, whose individual cells are men and women, each with its particular function in life. Its growth and permanence are possible so long as a healthy cellular metabolism continues, but when disease creeps in, when cellular function becomes perverted or destroyed, death inevitably ensues. So it is in our national life. A healthy body and a sane mind are just as esesential to national strength and perpetuity as to an individual. One of the greatest problems that confronts every civilized country is how to eliminate, as far as may be possible, the multitude of parasites that encumber its growth and development. Eugenists are convinced that natures way, though requiring the utmost patience and perseverance is the best way to accomplish this result. They propose, therefore, to invoke the aid of the law of heredity intelligently directed. I take the liberty of borrowing Galton's Standard Table of Descent with which to illustrate its operation.

If we take a large number of units, say 10,000 full grown men who differ in height by small gradations, we will find that they follow closely the Mathematician's Normal Law of Frequency. The average height will be at the line M on the accompanying chart. Now 25 per cent. will exceed the average height by one grade, or one inch; 16 per cent. more will measure between one and two inches above M; 7 per cent. more, between two and three inches above M, and 2 per cent. between three and four inches above. On the other hand, the rest of the men will fall short of M by the same proportions. Let me say that the figures of this table are not to be taken as numerically accurate, but rather as generalizations. The second row of figures at the top represent the same idea, but in round numbers; 2,500 of the 10,000 men will be found to measure above M, but less than M plus 1; 1,614 will measure above M plus 1, but less than

GALTON'S STANDARD TABLE OF DESCENT

Per 100 Fathers (or Mothers)	2	7	16	25	25	16	7	2	100
Per 10,000 Fathers (or Mothers)	35 180	671	1614	2500	2500	1614	672	180 35	10,000
Names of Classes.	v u	t	s	r	R	S	T	U V	Totals
Sons / Daughters of 35 Fathers / Mothers of Class V	......	....	....	.....	1	6	12	10–6	Sons or Daught's 35
" " 180 " " " U	......	....	.....	4	20	52	61	33–10	180
" " 671 " " " T	......	.....	7	44	150	234	170	57–10	672
" " 1614 " " " S	......	6	57	253	512	509	224	47–5	1613
" " 2500 " " " R	3	42	248	678	860	510	140	18–3	2502
" " 2500 " " " r	3 18	140	510	860	678	248	42	3	2502
" " 1614 " " " s	5 47	224	509	512	253	57	6	......	1613
" " 671 " " " t	10 57	170	234	150	44	7	.....	......	672
" " 180 " " " u	10 33	61	52	20	4		.....	......	180
" " 35 " " " v	6 10	12	6	1	.....	....	.....	......	35
Total 10,000 Fathers (or Mothers)	34 168	655	1623	2522	2522	1623	655	168 34	10004
" 100 " " "	2	7	19	25	25	16	7	2	100

M plus 2; 682 above M plus 2, but less than M plus 3; 180 above M plus 3, and corresponding conditions will be found among those who measure less than M in height. The grades above the general average are lettered R. S. T. U. V. and those below the average by r. s. t. u. v. Now this notation may be applied to the distribution of qualities of whatever character that make for public value, e. g. mental ability, physical excellence, moral stamina, but always with the assumption that each man mates with a woman of his own grade of ability and that they succeed in rearing one son and one daughter to adult life. Let us note, now, how closely the ability of the children depends upon the ability of the parentge. The 35 fathers of class V, which is the highest class, will produce 1 son of class R; 6, of class S; 12, of class T; 10, of U, and 6, of V, but none below R. Now compare this with the 2,500 fathers of class R, who produce 3 u class sons; and a gradually increasing number in each successive class, up to R, where 860 are produced; then a gradually diminishing number up to class V, where only 3 are found. In richness of produce, the children of V class parents are to those of R class parents in the inverse ratio of 140 to 1. It we go to the other extreme of ability we find that the 35 v-class fathers produce 6 v-class sons; 10 u-class; 12 t-class; 6 s-class; and 1 r-class, but above M. These are the criminals, the loafers, the pariahs of humanity. Perhaps, among this wastage of the earth, we may find a few capable souls, just as in the dross of the mine a few grains of pure gold may always be gathered; but the great mass of them pollute whatever they touch, and are incapable of improvement.

What is the application to national eugenics? In matters of education, in the arts, the sciences, in state craft, it is evident that we are to look for our most capable students among the high grades of parentage. In a nation like ours whose political life today, is a perfect whirligig of changes, whose economic growth has been phenomenal, whose policy it is to receive a motyled horde of emigrants and to assimilate them into a homogeneous citizenship, where are we to look for men as leaders and thinkers, our Adamses' and our Edwards', but among these upper grades of parentage? It is evident that men taken from the comparatively few families of high civic worth can be trained to a high degree of efficiency and at a far less cost than can men from families of a low grade of worth. It follows, then, as a matter of national economy, to keep these families as unmixed as possible, for the admixture of high grades with low grades always, in the aggregate, lowers the grade of efficiency of the following generations. On the other hand, it is desirable to keep the low grade families, the degenerate type, by themselves in order to facilitate their climination; for it has been shown that the interbreeding of these degenerate classes results in their sterility and finally in their extinction.

Such were the ideas promulgated by Plato, who must be considered, in fairness, the precursor of the Eugenic movement. How thoroughly he grasped the intensity of the law of heredity may be learned from his Book of Laws, and the Republic. He had studied the laws of heredity operating among the herds and flocks, in stud and kennel; and, observing that man was equally subject to the same biological law, he called upon the legislature to artificially purge the state of this natural plague. He who has a comprehensve grasp of all the factors of human biology, who recognizes the needs which insure a national soundness of mind and body is best fitted to be the law giver of a mighty people. The effort of the medical profession to secure the establishment of a health department in the government at Washington has this idea as its bed-rock; and no nation can be founded and enjoy a continued existence on any foundation less secure than a high average soundness of body and mind. A careful study of the biological factors concerned in the histories of ancient Greece and Rome, will immediately give a clue to the causes of their decline and fall. As a result of incessant aggressive wars, wealth and luxury abounded; indolency, as a result of slavery, became the rule of life; marriage and the home life fell into disrepute; prostitution became fashionable; and the art of the abortionist claimed thousands who should have been born to a useful existence.

In concluding this paper, I want to call your attention to a powerful factor that needs to be aroused to its opportunity for immeasurable good to the human race—an opportunity to be "doers of the word and not hearers only." I refer to the Christian Church. The modern Eugenic movement is intensely practical in its application and is saturated with religious dignity. It ought to find a welcome in any creed looking to the uplift of humanity. In this respect we have much to learn from Paganism and Judaism, from Jap and Jew, among whom racial fitness and racial preservation have the force of a religious conviction.

(continued on page 647)

MODIFIED COW'S MILK AS A SUBSTITUTE FOOD IN INFANT FEEDING

By

FIRST LIEUT. W. E. FITCH,

Medical Reserve Corps, United States Army.

The subject of infant feeding is a most interesting and important one, viewed from the standpoint of either morbidity or mortality. The mortality of infancy is notoriously high, due in some instances to neglect and bad environment, but mostly to bad food and worse methods of feeding. The morbidity of infancy is due almost entirely to errors of diet, as witnessed by the many cases of malnutrition, marasmus, rickets, scurvy, and the catarrhal affections of the intestinal and respiratory tracts which carry off so many of these poor unfortunates during the much-dreaded second summer. This condition of affairs is all the more lamentable because it is for the most part preventable by providing good food and proper methods of feeding.

It is most important that a foundation of good health be laid during this period, otherwise the child starts life handicapped with a poor digestion and a feeble constitution, and is therefore liable to fall an easy prey to any of the common diseases of childhood, which a healthy child would probably not have contracted, or, if it did, would have had the vitality and resistance to have recovered.

It is a much to be deplored fact that maternal feeding is gradually, but none the less surely, being superceded by some kind of substitute feeding. The reasons for this are many, and I fear the condition will never improve to any material extent. Many mothers of the present day have neither the quantity nor the quality of milk to properly nourish their offspring, and those especially in the upper walks of life do not care to be burdened with the responsibility of nursing, and others are unwilling to give up sufficient time to nurse their infants, or to take the proper care of their own health to secure a normal lactation. With a much larger class the failure of the maternal milk supply and the resort to artificial feeding is due directly to ignorance and indulgence on the part of the mother, and secondly, to negligence on the part of the family physician in not instructing the mother upon the importance of nursing her infant regularly during the first nine or twelve months and in the care of her own and the child's health during this period.

The most casual reader cannot fail to be deeply impressed by a glance at the vital statistics of the early life of children, coming into this world and facing the odds that are against them, is indeed a serious undertaking, especially when we remember that so many must succumb before reaching the first mile post on the journey of life. Prof. J. Lewis Smith, writing on this subject says. "One-tenth of all children born die during the first month." Twenty percent. die during the first year and fifty percent, before the end of the fifth year. Since there is so much danger of loss of life, and more especially since such a large percentage of deaths at this period are due to errors of diet and consequent disease, we are brought face to face with the question of errors in infant feeding as the cause of the alarming mortality of this period of life. It is only during the past decade or two that the subject of infant feeding has assumed proportions at all adequate to is importance.

Healthy breast milk, from nature's fountain, the natural and only ideal food for babies, may be taken as the ideal type of infants' food and the nearer an artificial food can be made to approach it in chemical composition and physical properties, the more perfect it is. Normal breast milk has a specific gravity of 1.031. It is a persistently alkaline fluid, having a somewhat, unusually disagreeable and very sweetish taste. It is bluish white in color, and thin and watery in consistence, and according to Pfeiffer, Koenig, Leeds, Harrington, Adriance and others, as quoted by Holt, has the following composition:—

	Normal Average Per Cent.	Common Healthy Variations Per Cent.
Fat	4.00	3.00 to 5.00
Sugar	7.00	6.00 to 7.00
Proteids	1.50	1.00 to 2.25
Salts	0.20	0.18 to 0.25
Water	87.30	89.82 to 85. 0
	100.00	100.00 to 100.00

Human milk, then, contains fats, nitrogenous materials, carboydrates, salts and water,—all the elements essential to repair tissue waste, to supply new material for growth and to maintain body heat, or in other words, to constitute a perfect aliment; and these are so proportioned in the combination as to most easily and completely meet the demands. It must not be supposed, however, that the elements are uniformly present in the same proportion; on the contrary, the fluid varies in composition both at different periods of lactation and in different individuals.

This fact is the most striking feature of Leed's investigations which shows that the most changeable constituent is the albuminoids, varying from a maximum of 2.50 per cent. to a minimum of 0.75 per cent. The next are the fats and salts, the maximum being about three times the minimum; and the least, the sugar. The latter in fact, varies but little from a standard of 6.50 percent. The function of the albuminoids is nutritive: that of milk sugar calorifacient. Hence the point seems to be that Nature, while allowing a wide range of oscillation in tissue building, carefully provides an available fuel for constantly maintaining animal heat.

We must study each of these constituents in order to determine its importance in the combination. The fats encourage the growth of the bones, nerves, furnish animal heat and are also devoted to storing up fats in the tissue of the body. The carbohydrates have two important functions—the production of animal heat and fat. The proteids stimulate the development of the tissues generally, the cells of the body, the blood, muscles and organs of the body. The function of the salts is to stimulate the growth of bone. A great many attempts have been made by chemists to establish a fixed formula for normal mother's milk; the result has been to prove that there is no such thing. Not only does the milk of different mothers vary very much, but also the milk of the same mother has been shown to vary several times during the course of a single day. The formula given above is one that is pretty generally accepted as a fair average of a good sample of mother's milk. Having learned the value of each of the constituents—the fats, the carbohydrates and proteids, more especially, we also learn that the proteids (containing the casein), existing in the smallest per cent of the three, are the most important, because it is from these that the greatest volume of the body and that which must perform its most active functions are made up.

In seeking a substitute for human milk, one naturally selects the milk of the lower animals, and cow's milk is preferable owing to its cheapness, and in the majority of cases this the only milk to be considered, though in some places goat's milk is used in rather large quantities. However, cow's milk is universally used because of the fact that it contains the same general constituents of and can be modified to nearly resemble mother's milk and for this reason properly modified cow's milk is the best substitute for mother's milk where artificial feeding is necessary. No food product is so capable and easy of contamination as milk, or one in which so little average intelligence used in its production and care. We all know how common the saying is, especially in large cities, when the diet of a sick child is under consideration; "Take it to the country where you can get good milk." It is a well known fact that but few people in the country, unless in the scientific dairy business, know the first principles of the production and handling of milk. Realizing the fact that pure milk, and especially for infants and sick children, was a necessity, Dr. Henry L. Coit, of Newark, N. J., more than 20 years age, thought out a plan for the production and handling of milk in a scientific manner and to his unrelenting efforts is due the finished product of the dairy termed "Certified Milk." He and his associates have done humanity a great service in systematizing and making uniform rules and standards and working methods of commissions, and popularizing a plan for obtaining at least one pure supply of milk in the larger cities.

Cow's milk, to be fit for consumption, by infants and children, should be produced under the following conditions: In the first place it should be clean, and from a healthy herd which has been tested for tuberculosis: cooled immediately after milking: bottled at once and sealed: contain no preservatives: be of standard and definite chemical composition and kept cool until delivered to the consumer. It is a mistaken fallacy, to use the individual milk from one cow. It is far better that it should be the mixed milk from several cows, or from a herd. The ordinary city market milk is absolutely unfit for feeding infants and children. It is produced in districts remote from the city, being delivered in large cans, hauled through the streets in uncovered wagons to a central distributing station, and there bottled (usually in bottles that have not been sterilized). From this point it is distributed, frequently no ice being used. Some dairy concerns bottle the milk in the delivery wagons, direct from cans, such milk swarms with millions of bacteria and rapidly sours in warm weather, even if kept on ice

A cow, to produce good milk should not be fed upon distillery waste, or slop from breweries, grain or ensilage in any state of putrefaction or fermentation. Cows so fed suffer from diarrhea and the stables housing them are filthy beyond description and the milk produced in such surroundings is absolutely unfit for consumption by infants and children.

"Cow's milk is intended to develop the digestive tract of the calf for its future task of digesting tough and fibrous food, while human milk is intended to develop the digestive tract of the infant for its future work of digesting food of an entirely different physical character."

Pasteurized milk was first advised by Soxhlet in 1886, who lauded the precedure describing an apparatus for pasteurizing milk in the home. Pasteurized milk, at best only means "heated milk," and does not necessarily mean "clean or good milk." On the other hand, it often means "bad" milk. Unfortunately the pasteurization or sterilization of milk lulls one into a false feeling of security in regard to it. The bad effects of boiled milk have been strikingly indicated by an interesting observation made upon calves by Jensen which is quoted by Czerny and Keller in "Des Kindes Ernahrung:" "A feeding of boiled milk to calves as the first meal will, in most cases, call forth a severe and sometimes even hemorrhagic diarrhea, which, as a rule ends in death and presents the same picture both pathologically and bacteriologically as the typical acute dysentery of calves. This observation was first made at several farms where there had been no severe diarrheal troubles until, with the introduction of tuberculin testing, the custom arose of feeding the calves from birth on boiled milk. Between 80 and 90 per cent. of the calves thus fed died."

Cow's milk has a specific gravity of 1.029, is richer looking—that is, whiter and more opaque than human milk, and is slightly acid in re-action.

Average Analysis of Cow's Milk Based on 5552 Analyses of American cow's milk made by Lucius L. Van Slyke, Chemist of New York Agricultural Experiment Station:

	Water	87.1 per cent	
	Total Solids	12.9 per cent	
	Fat		3.9 per cent
Proteids	Casein	2.5 per cent	3.2 per cent
	Albumin	0.7 per cent	
	Carbohydrate		5.1 per cent
	Ash		0.7 per cent

(0.7 per cent ash equals 0.9 per cent salts)

By this, it will be seen that the average percentages of food elements in cow's milk is more nearly fat 4, proteids 3.5, and carbohydrates 5, than the 4, 4, 4 percentages usually calculated from in top milk formulas, or even 4, 3.5 and 4.5, as often followed.

Cow's milk contains more nitro-genous material, but less fat and much less sugar than woman's milk. Undue attention has been given to the organic constituents of milk and too little to the mineral contents. Cow's milk contains twice as much phosphorus as woman's milk. When cow's milk is substituted for woman's milk, chloride of sodium should be added. The salts of calcium are present in greater proportions in cow's milk, but this difference can safely be neglected, as nature permits of a more generous variation in the feeding of infants than do laboratory tyrants. Woman's milk and cow's milk differ in specific gravity, and reaction. These differences and the general characteristics of the two fluids are very striking when tabulated as follows:

	Woman's milk	Cow's milk
Reaction	Persistently Alkaline	feebly Acid
Specific gravity	1.031	1.029
Bacteria	absent	Always present

		Average		Average
Fats	3.0 to 5.0	4.00	3.0 to 5.0	4.00
Carbohydrates (Lactose)	6.0 to 7.0	6.50	4.0 to 6.0	5.00
Proteids Albumidoids	1.0 to 2.25	1.75	2.5 to 6.0	3.50
Inorganic Salts	0.18 to 0.25	0.20	0.6 to 0.9	0.70

While the sugar of human and cow's milk is chemically identical and the fats are quite similar, there are important differences in the quality as well as the quantity of the nitrogenous material. This in both fluids is complex, being made up of casein, lactalbumin, and peptones. Casein is an acid substance and is present in combination with an alkali, chiefly as calcium casein. The casein of cow's milk is readily precipitated by dilute acid, and is thrown down in large firm masses; that of human milk requires more acid and is precipitated in fine soft particles, which are dissolved by an excess of acid.

The relative proportions of casein and lactalbumin have been determined with sufficient accuracy to point out the most important of all the differences between the two secretions, which is, that the fraction of the total albuminoids in cow's milk which is coagulable by acids (casein) is far greater (perhaps four times or more) than the non-coagulable part (lactalbumin). In woman's milk, on the contrary, the reverse is true, and the non-coagulable part exceeds by about 5 to 4 the coagulable portion. Taking weight for weight of each secretion, the coagulum of human milk is only one-fifth that of cow's milk.

This difference is readily determined by adding rennet to the two fluids. In cow's milk the casein is coagulated into large, firm masses, while with human milk a light, lose curd is formed. In the stomach the acid gastric juice has the same effect, producing, in the first instance a coagulum that is most difficult to digest; in the other, one of vastly less bulk and readily attacked and easily broken down by the gastro-intestinal ferments.

To overcome these objections, Drs. Jacobi, Chapin, Keller and the late J. Lewis Smith and other prominent pediatrists advocate the addition of cereals to cow's milk as an aid in the infant's digestion. Acting upon this idea I began many years ago to add barley water to cow's milk as a diluent and had fairly good results in artificial infant feeding. A few years later my attention was directed to a valuable preparation composed of cereals and sugar of milk combined with egg albumen known as "Eskay's Food." This food is used as a modifier of fresh cow's milk and the milk is not boiled in the preparation.

This food consists largely of carbohydrates; the soluble carbohydrates, almost wholly milk-sugar, are about 50 per cent. The insoluble carbohydrates, principally starch are a little less than 40 per cent. The makers claim that during the process of manufacture the starch granules are almost entirely disintegrated, and when the food is prepared with milk, according to directions, the percentage is said to be not over 1 1-2 per cent. An analysis of the dry food shows that it contains about 6.7 per cent. of proteid matter, and when prepared according to the six months' formula it analyses about 2.50 per cent of proteids.

The fats as well as the proteids are almost entirely vegetable with a small percentage of each derived from eggs. Excepting the sugar of milk and egg, the preparation is produced from wheat, oats and barley, and, while no proteolytic ferments are used in its manufacture, the insoluble carbohydrates are to a very small extent converted into dextrin by a special process of heating, which ruptures the starch granules and converts a very small amount of the starch into dextrin.

In the process of manufacture, the egg albumen is combined with sugar of milk in such a thorough manner that the particles are finely subdivided, and no firm, hard coagulum can therefore take place in the stomach. The particles retaintheir identity and do not coalesce; so that in the finished preparation the egg albumen is suspended throughout the whole mixture in very fine particles, which are easily digested, because the gastric juice acts by contact, and, the smaller the particles, the greater the effect of the gastric juice. No claims are made by the manufactures for solubility, but only for extreme case of digestion and high nutritive value.

The directions for preparing it for an infant six months of age are:

Eskay's Food	4 tablespoonfuls
Hot Water	1 pint
Rich Cow's Milk	2 pints
Sodium Chloride	Small pinch

Of this mixture, a child six months old is ordered to have about 7 1-2 ounces at a feeding and to be fed about every 3 hours.

Composition of Modified Cow's Milk when prepared as above with Eskay's Food:

		Woman's Milk.
Water	88.00	87.55
Total Solids		
Fats	3.00	4.00
Carbohydrate (Lactose)	4.75	6.50
Proteids (Albumenoids)	2.50	1.75
Inorganic Salts	0.50	0.20
Starch	1.25	
Total	100.00	100.00

By the use of top milk, water and Eskay's Food the proportions of proteid, fat and carbohydrates can be varied to suit the requirements of the case. In this way the physician can secure the exact formula which the case requires and in a state of modification which makes the milk easily digested.

The fact that Eskay's Food is boiled separately with water, and the milk added after it is taken off the fire is very important, because in this way the vitality of the milk remains unimpaired, which is now recognized to be of the greatest importance in the feeding of infants. Milk seems to contain certain principles (we know not what) which exerts an important influence over the whole digestive system. These principles are destroyed in those products which are heated to the boiling point in their preparation.

In feeding babies we have to take the hard-curdling milk, which is in cow's milk, and feed it to a baby that is used to a soft-curdling milk from the mother, and this is where the great trouble arises. The hard, lumpy masses of casein that are thrown down by the rennet and acid in the stomach are difficult for a baby to digest, and it is well to bear in mind that the digestive enzymes act by contact alone. Almost all indigestion that we have in infants, as well as adults, is due to food getting into the stomach in hard lumps, so that the enzymes cannot get at it. The casein of cow's milk clots in hard, lumpy masses, the digestive enzymes of the stomach cannot get at it, and any means by which we can break up the clot and make it more flocculent will increase the digestibility of the milk, and it is this characteristic that renders Eskay's Food such a valuable product. Through its gelatinized starch the curd clots are prevented from forming, the starch seeming to allow the curd to form only in small, soft flakes as in mother's milk, thus allowing the digestive enzymes to come into almost perfect contact with the coagulum or casein.

Theoretically the child under six months of age, because of the deficiency of salivary and pancreatic secretions, is said to be incapable of digesting starches. *Practically this is not true.* Nearly every fluid in the human economy has a diastatic ferment, and as a matter of fact the very young infant does digest starches. We have seen too many babies successfully fed on arrow root to deny this fact. Heubner, of Berlin, showed that diastase can be found in the parotid gland of the infant two hours old, sixteen days and two months old. An infusion of parotid gland converts starch into sugar from the beginning of life. An infusion of pancreatic gland does not convert starch into sugar, and its diastatic power even at the end of a year is but feeble. The objection in the old literature on pediatrics to the use of starch in infant feeding referred to the excessive use or the exclusive use of starchy foods.

Professor Kerley, of New York, in discussing carbohydrate feeding in infancy says; "There is no age limit for cooked starch feeding." He refers to Moro's finding of a diastatic enzyme in the pancreas of infants dying at birth and of others of tender age, he reports that Craig found such an enzyme in the pancreas of an athreptic child dying at 6 weeks. Kerley conducted a series of 324 stool examinations in the New York Infant Asylum for the purpose of observing the digestion of infants fed exclusively on a starch diet. Of 60 cases thus examined and carefully studied 41 showed good starch digestion, 19 poor starch digestion and 11, of those that demonstrated their capacity to digest starch, were under 6 months of age. His general conclusions were that if all of the starch was not digested, it did little harm, though sometimes it caused constipation.

Finkelstein, of Berlin, whose experience and general sound judgment are respected by the leading pediatricians of the world is equally emphatic that very young children are capable of digesting starches. In his text book on Diseases of Nurslings he does not recommend exclusive starch diet for children but avers there can be no question of their value when added to the diet in proper amounts under careful supervision. After discussing the subject further he believes in the value of the addition of cereal decoctions to milk quoting favorable published opinions by Jacobi, Epstein, Schmid, Monard, Keller, Newman, Heubner and others, whose views are in complete accord with his own experiences. His wide research and clinical experience prove that the addition of cereals to milk is not only allowable but to be most warmly recommended, not only in older but also in very young infants. He further states that from the standpoint of digestion and gain in weight, the advantages of the cereal decoctions are found in the finer sub-division of the casein curd in the stomach, in the relief from constipation, in the disappearance of soapy and dyspeptic stools, in the proteid-sparing power afforded by the cereals, and, finally, in the general increment of growth. He believes that the cereal milk mixtures are the most valuable of all methods of infant feeding at present in vogue for healthy children, very often from birth, but certainly after the second or third week of life.

It will be observed from the foregoing that the experience of the leading pediatrists of the world are in accord—that the majority of infants, even of tender age are able to digest starch. Not every infant, by any means, can take cow's milk, or asses milk or goats' milk; but starchy foods may be added with benefit to infant's food in a great majority of cases, and that they may be used with benefit as a substitute for these foods in illness is established beyond all question experimentally, chemically and clinically.

The differences and general characteristics of woman's milk, cow's milk, and cow's milk modified with Eskay's Food are plainly seen by studying the comparative analysis as given below.

	Mother's Milk	Cow's Milk	Cow's Milk modified with Eskay's Food-Regulation Formulæ at 6th Month.	Cow's Milk Modified Top Milk Formulæ with Eskay's Food at 6th Month.
Reaction	Alkaline	Acid	Alkaline	Alkaline
Fats	4.00	4.00	3.00	4.00
Carbohydrates	6.50	5.00	4.75	4.75
Proteids	1.75	3.50	2.50	1.75
Inorganic Salts	.25	.75	.50	.50
Starch			1.25	1.25
Total Solids	12.50	13.25	12.00	12.25
Water	87.50	86.75	88.00	87.75
	100.00	100.00	100.00	100.00

It will be observed that mothers milk is alkaline, cows milk modified with Eskay's Food is also alkaline, while cows milk unmodified is acid.

Cow's milk contains double the amount of proteids as does mother's milk; Eskay's Food 0.75% more, top milk formula the same quantity Cows milk contains 2% less milk sugar than does mother's milk,Eskay's Food 1.75% less, but the starch increases the amount of carbohydrates to almost that of mother's milk. The fats in cow's milk and mother's milk are about the same;

but since cow's milk has to be diluted before feeding the amount of fat is reduced to about 2%. In Eskay's Food it is increased to 5% and by the use of top milk formula can be brought back to the normal 4%.

The object to be accomplished in the preparation or the modification of cow's milk as an artificial food, is to prepare a fluid which will resemble human milk as near as possible in chemical composition and physical properties. To do this, it is necessary to reduce the proportion of albuminoids, to increase the proportion of fat and sugar, and at the same time to overcome the tendency of the casein to coagulate in large firm masses after entering the stomach and coming in contact with the acid gastric juice. All this is accomplished by observing the proportions as outlined in the table given below, using cow's milk, water and Eskay's Food.

The modification of cow's milk by the usual barley water decoction is and has always been an unsatisfactory procedure since there is no standard formula for making it. This mucilaginous liquid is usually prepared by pouring 2 quarts of boiling water on an ounce of Pearl barley and boiling it down to 1 or 1 1-2 pints and straining. The directions for preparing this decoction in Great Britain is: wash 2 ounces of pearl barley with cold water, reject the washings and boil the washed barley with 30 fluid ounces of distilled water for 20 minutes in a covered vessel and strain. Fischer orders that 1 tablespoon of pearl barley be finely ground and added to 1 pint of cold water. This is allowed to simmer for 1 hour, it is then strained and enough water added to make a pint. Chapin beats 1 or 2 tablespoons of barley and enough cold water to make a paste. This is added to a quart of boiling water and boiled 15 minutes, preferably in a double boiler. Holt orders 2 tablespoons of barley boiled in 1 quart of water continuously for 6 hours, keeping the quantity up to 1 quart by the gradual addition of water and then strains. Other pediatricians simply soak pearl barley in water over night and without boiling strain it in the morning. Kerley directs Robinson's barley flour one rounded tablespoonful water one pint. Boil thirty minutes, strain, add water to make one pint. Sheffield orders one tablespoonful of prepared barley to be rubbed up in a little cold water. To this gradually add a pint of boiling water and boil the mixture slowly (simmer) for twenty minutes, constantly stirring, then strain, adding hot water, quantity sufficient to bring the mixture up to one pint. By this it can be readily seen that the usual barley water mixture is like the letter x in an algebraic problem, it stands for an unknown quantity. So there being no standard rules for the preparation of barley water, the product obtained must, of necessity be variable in character and quality and in some instances entirely valueless.

The first step in the preparation of a substitute food for an infant deprived of the normal nourishment from its mother's breast is the selection of a fresh, clean, good milk from a herd of tuberculin tested cow's (preferable "certified milk") and modify it as follows: Mix the food (see table below) with sufficient cool water to make a smooth thin paste. To this mixture add the quantity of hot water specified in the table and boil for 40 minutes (in a double boiler), keeping the water in the outer vessel constantly boiling. A single boiler can be used, but the boiling should be for only 15 minutes and the mixture constantly stirred to prevent sticking or scorching. Remove from the fire, add enough boiling water to replace that lost by evaporation, then add the top milk or milk, add a pinch of table salt to improve the flavor and stir the mixture thoroughly. Then pour the mixture into previously sterilized nursing bottles. Place the bottles in a cool place, preferably in an ice chest.

This method of preparation prevents overheating of the food and the possibility of constipation arising from the use of boiled milk is prevented. When it is necessary to feed the baby, heat a bottle of the modified milk, by setting it in hot water and allow it to remain until the liquid is of blood heat, and feed warm. The quantity given in the table below will be sufficient for a day's feeding. A convenient way to obtain an 8-oz top milk is to place a quart bottle of milk on ice, and after the cream has formed, remove the quantity desired, or the upper 8-oz of liquid.

It will be noted that in these formulas the maximum amount of whole milk and the minimum amount of top milk is used to obtain higher fat percentages than can be had with simply dilutions of milk and water.

By reason of the fact that the fat of cow's milk is more difficult to digest than the fat of human milk, the general practice today is to employ only 3 or 3.5 per cent basis of fat in milk mixtures.

TABLE OF INGREDIENTS.

Hours, intervals of feeding, quantity at each feeding and total quantity of feed for 24 hours for an infant at birth to 18th months.

Age	Hours of feeding	Intervals of feeding	Eskay's Food*	Top Milk from qt. bot. 8 oz.	Whole milk	Water, Hot	Quantities at each feeding.	No. of feedings and quantity in 24 hours.	Percentages
1st week	5 A. M. to 11 P. M. & 1-3 A.M	every 2 hours	3 teaspoonfuls	4 tablespoonfuls	2 tablespoonfuls	1 Pint	2 to 3 tablespoonfuls	12 feedings 1 pint	Fat 2% Proteids.0.75%Carbohydrates 5%
2nd to 6 th week	5 A.M. to 11 P.M	every 2 hours	4 teaspoonfuls	¼ Pint	¼ Pint	1 Pint	3 to 5 tablespoonfuls	10 feedings 1¼ pints	Fat 3% Proteids 1% Carbohydrates 5%
6th to 12th week	5 A. M. to 11 P. M.	every 2 hours	4 teaspoonfuls	¼ Pint	½ Pint	1 Pint	6 to 9 tablespoonfuls	8 feedings 1½ pints	Fats 3.5% Proteids 1.5% Carbohydrates 6%
3rd to 6th month	6 A. M. to 10 P. M.	every 2½ hours	2½ tablespoonfuls	¼ Pint	¾ Pint	1 Pint	9 to 12 table spoonfuls	7 feedings 2 pints	Fat 3.5% Proteids 1.75 Carbohydrates 6%
6th to 9th month	7 A. M. to 10 P. M.	every 3 hours	3½ tablespoonfuls	¼ Pint	1¼ Pint	1 Pint	12 to 16 tablespoonfuls	6 feedings 2½ pints	Fat 3.5% Proteids 2% Carbohydrates 6.5%
9th to 12th month	7 A. M. to 10 P.M	every 3 hours	4 tablespoonfuls	¼ Pint	1¾ pint	1 Pint	16 to 20 tablespoonfuls	6 feedings 3 pints	Fat 3.5% Proteids 2.5% Carbohydrates 7%
12th to 18th month	7 A. M. to 9P. M.	every 3½ hours	6 tablespoonfuls	¼ Pint	3¼ Pints	1 Pint	20 to 25 tablespoon fuls	5 feedings 4½ pints	Fat 4% Proteids 3.0% Carbohydrates 7%

*Teaspoonful and tablespoonful means rounded spoonfuls

L. Emmett Holt states that: "The average amount of fat of cow's milk which a healthy infant can digest varies from 2 to 4 per cent. With many infants it is often necessary to begin with a slightly lower amount than 2 per cent. The increase is made very gradually, the upper limit being reached usually at four of five months. I have seldom found it advantageous to increase the fat above 4 per cent. and constantly see serious derangements of digestion produced by the use of higher percentages. *The danger of disturbing the infant's digestion by using too high fat is not sufficiently appreciated.* This mistake is frequently made when rich Jersey milk is employed and also, when the fat percentage is steadily raised for the purpose of overcoming chronic constipation. There are many healthy infants who cannot digest even 4 per cent of fat at any time, and many more who during hot weather do much better when a reduction to 3 or 3.5 per cent is made."

Below are appended a few clinical cases and the results obtained from this plan of feeding.

Case I.—Mrs. B.'s baby, aged two months was not very strong at birth (weight 7 1-2 pounds). It appeared to thrive fairly well, but owing to failure of mother's health, the quantity and quality of the milk was not sufficient food for the baby, he was put on cow's milk, which had set up a gastro-enteritis before I was called. When I saw the baby he was suffering from the usual train of symptoms accompanying intestinal indigestion. He was at once placed upon modified cow's milk, as outlined in table giving ingredients, hour, and intervals of feeding for child of two months. He was kept on this food, changing quantities of ingredients as the child grew older. He at once began to improve, became playful, slept well and the intestinal indigestion disappeared, and at the age of ten months weighed 18 pounds From this time on, baby had no further trouble during the nursing period.

Case II.—Aged six months; (weight at birth eight pounds) the mother was a pale anemic woman, furnishing a small supply of poor milk upon which the baby fed for the first two months. At this time another physician who prescribed for the baby put it on some form of artificial food which it continued to take for two months. On this the baby did not thrive. I first saw this child at six months; baby was thin, pale and flabby, the process of athrepsia being already established. Emaciated, weighed only ten pounds.

He was at once placed upon modified cow's milk as outlined in table above giving quantities of ingredients, hours and intervals of feeding for a child of six months old. Baby at once began to increase in weight, and to grow strong from the day diet was changed. The summer season came on about this time, and the baby with its mother, went to the country.

At the earnest solicitation of relatives, the baby was given solid food. In a week's time baby was returned to the city with acute gastro-enteritis, which lasted for more than two months, and from which it went through a slow and tedious convalescence lasting several months, food was increased to meet the changes as the child grew older.

At the age of ten months, the child was regaining its former vigor. At the age of one year, it was entirely recovered, well, fat and hearty, weighed 23 pounds. The food was continued.

The baby is now a year and a half old, weighs 32 pounds has been weaned and seems in most excellent condition for the approaching second summer.

Case III.—James, the son of Mrs. G., at birth was a fine healthy boy weighing ten pounds. Mother strong healthy woman, and had nursed her former child successfully. At age of two months, it was noticed the baby was not thriving well, it was also noted that the mother's milk was not of normal quantity and quality to properly nourish the child. Var ous foods and cow's milk were tried to improve the milk without avail. At the beginning of the third month, baby only weighed twelve pounds. I ordered him placed upon modified cow's milk. (See table giving quantities, hours and intervals of feeding for a child of three months old) He soon began to improve and grew rapidly. The food was continued gradually increasing the ingredients as he grew older, and from this time on he had no further trouble of any nature except an inclination to constipation, which was relieved by the use of infantile suppositories. The child is now thirteen months old, has six teeth, and weighs thirty two pounds and is a perfect picture of health.

Case IV.—Infant prematurely born, at thirty-third week of pregnancy. At birth the child weighed five and a half pounds. This case illustrates the fact that a premature infant, if its weight is extremely small, and its development about the average for its age, will live and thrive provided certain precautions are taken for its preservation. The infant was placed in a room where the temperature was constantly kept about 75 F. The air immediately surrounding the infant (which was kept in a basket) was heated about 85 F. the infant being wrapped in fresh absorbent cotton. The infant was fed with breast milk from a spoon for a week, and then allowed to take the breast, and continued to nurse from nature's fountain until the end of the third week when the fountain suddenly failed. Then it was placed upon modified cow's milk. (See table above referred to, giving quantities of ingredients, hours and intervals of feeding). This being a weak premature little fellow, he was given the quantity as shown by the table giving hours and intervals of feeding for a child one week old. The diet was just the thing as he grew rapidly, gained in strength, stools showed no evidence of undigested casein. There is nothing especially interesting to record within its history or physical condition, except a small umbilical hernia, which did not cause very much discomfort, and which closed at the end of the third month, with attention to its warmth, and food regulated as it grew older (as per table) it throve as any infant at term would have done, and is now a well, strong healthy baby, ten months old, and weighs 17 1-2 pounds.

Case V.—Infant, born at term weighed seven pounds. Mother sporting character, who did not want to nurse her baby, but upon my advice put baby to breast, and nursed it during my attendance. (I don't know how much longer). When it was eight weeks old, I was called to see it. At that time it was in charge of an old Irish woman who was taking care of it.

Its diet had been cow's milk. Its bowels were giving trouble, cow's milk producing a coagulum which the digestive enzymes of the baby's stomach could not break down. The child was fretful, peevish, emaciated, rhachitic, and a severe gastro-enteritis was present, which was controlled by tannopine and change of diet. Eskay's Food was added to milk in the proportions as shown in table giving quantities, hours, and intervals of feeding. The infant apparently improved for about one week when the gastro-enteritis suddenly became worse. Under appropriate treatment, however, it was controlled and baby again began to improve, the food was increased as outlined in table referred to, as baby grew older, and now at the seventh month, the baby is growing, and gaining in flesh and strength, has one tooth, and weighs twelve pounds.

Case VI.—Infant three months old, nurse gives history of having fed it on various foods containing starch in various combinations with cow's milk from its earliest months of life. The nurse said it was healthy at birth, and of average weight, seven and a half pounds. When presented for treatment, boy weighed 5 3-4 pounds, but extremely emaciated approaching the advanced stage of infantile atrophy, was suffering from slight gastro-enteritis, it was unable to raise its head, its skin cool and dry; its respirations were shallow; its pulse weak; and its temperature slightly sub-normal. It looked as if it would not live many days. A physical examination did not reveal any abnormal conditions. The fecal movements were rather large, and contained undigested coagula. The infant was placed on cows milk modified by Eskay's Food, in the proportions as laid down in table previously referred to. After one week on this food it was showing slight improvement, began to gain in weight and to absorb its food, as the dejections were free from casein, although this child had a number of relapses at the end of three months treatment, it was fully recovered.

Case VII.—Baby Belford, one month old, well developed at birth, weighing eight and a half pounds. It nursed the mother two weeks until quality of the milk, as well as the quantity were both wanting. Mother developed a phlebitis, from which she died on the 25th day. The poor quality of the milk had begun to tell on the child before it was taken from the breast; as a substitute diluted cow's milk was given by the nurse. After the death of mother, my attention was directed to the child, it had not gained but very little since birth. I at once ordered modified cow's milk an artificial food as showed by table of ingredients previously referred to, allowing quantity as indicated for a child of its age, it was put on the food at once, there being a package in the house, which an older child was formerly using.

The change was an ideal one. The baby is growing nicely. Sleeps well and at age of five months, weighs 15 pounds.

Case VIII.—Male infant, robust and well developed at birth, weighed 8 3-4 pounds. The mother not being able to suckle infant, and the danger of artificial feeding in the warm months (July) being well understood, a wet nurse was procured. About ten days later this wet-nurse having insufficient milk, another was procured temporarily, who nursed the infant about four weeks, when a third wet-nurse was procured, whose child was healthy and thriving, being about six weeks old. Before dismissing the second wet-nurse, to all outward appearances was doing well. Four days after commencing to suckle the third wet-nurse, the infant developed thrush, mild in type, which yielded to appropriate treatment. This illness upset the infant's digestion, and diarrhœa was the result yet the baby recovered, but was left weak and fretful. The diet was now changed to cow's milk modified by the addition of Eskay's Food, prepared as per table referred to, giving quantity, hours and intervals of feeding.

After being on this diet for one week, signs of improvement were noticed. Nothing of importance occurred from this time on, except a summer diarrhœa which was soon relieved and proportions of food changed as child grew older. The child is now nine and a half months old, weighs 16 pounds, is as hale and hearty as any breast-fed boy of same age.

Case IX.—Infant four months old, premature birth, only weighed 6 1-4 pounds when delivered. This infant, a male child, was well and strong at birth for a premature infant. It was not nursed, but was fed on a mixture of cream, milk and barley water. It is reported by a nurse, to have been satisfied with the small quantities of food suitable for its age. When it was three weeks old, the nurse says it took six ounces of this food at each meal, and nursed on an average of every two hours. Somewhat later, in its second and third months, it gradually developed symptoms of indigestion and when I was called to see it, it was in a very serious condition, it had been having frequent and prolonged convulsions. At times, when it was in convulsion, it would fall into a state of collapse, the pallor of its face would be extreme, and would look as though it were dying. On examination nothing abnormal was found in the thorax. The entire abdomen was found to be distended, especially in the upper part. Dilatation of the stomach was easily diagnosed, the gastric tympany was pronounced, easily marked out by percussion. The percussion showed the stomach to be dilated, and to extend below a line of umbilicus, and far to the left of the median line, the dilatation was produced by the large quantities of food allowed.

The diet was changed to cow's milk modified with Eskay's food as indicated in table giving quantities, hours, and intervals of feeding for a child three months old. The infant was given somewhat smaller quantities of food than the table indicates. For the first two or three days it cried and screamed for more food, but the convulsions ceased, its general condition improved and at the end of three weeks the distensions had subsided very markedly, and the infant had become tranquil, and from this time on, there was no recurrence of the symptoms.

The food was continued, changing the quantities as age increased; at the sixth month the dilatation had entirely disappeared and the child went the remainder of the nursing period without any trouble, and now at the age of 16 months is a well hearty baby, weighing 28 pounds.

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(continued from page 626)

The latest Eugenic news from Europe is to the effect that the head of the Armenian Church in Constantinople has decreed that, hereafter, anybody wishing to be married by the Armenian Church must furnish a certificate from a qualified physician, attesting to the perfect health of the contracting parties. Close upon the heels of this report comes a statement in the daily papers that the dean of St. Paul's and St. James' Cathedral in Chicago has issued a similar decree. The leaven is working. These steps plainly make for human progress and should be emulated by the entire Christian Church. The sanctity of the marriage covenant should guard the nation and the race against the encroachment of the enemies of racial fitness and racial preservation. The celibacy of the Catholic priesthood and of the orders of nuns is greatly to be deplored, depriving the human race, as it does, of the heritage of capable brains and gentle souls.

When Francis Galton offered to the world the new science of Eugenics, he proclaimed a new philanthropy, a new religious tenet, a new loyalty. On this common ground the least and the greatest alike may meet to work for the national good. The spirit of service which is the clarion call of all modern activities, can be examplified in no better way than in a conscious effort to improve the human breed in civic worth. I trust I am not visionary, nor given to "pipe dreams," but I believe the time is coming when conscious stirpiculture will become as fashionable as it is necessary. Here certainly is a practical way of hastening that day when disease and crime, and suffering, in some particulars at least, will be stayed in their downward course; when the general tone of domestic and social life will be elevated; when the race will be less foolish and less frivolous, because more heedful of the duties and obligations to themselves, to posterity, and to the nation at large.

SOCIETY TRANSACTIONS

THE NEW ENGLAND PEDIATRIC SOCIETY.

The twentieth meeting of the New England Pediatric Society was held in the Boston Medical Library on March 30th, 1912. Dr. James Marsh Jackson was in the chair. The following papers were read.

I. The Wasserman Reaction In Infant's and children. A Clinical Study. F. S. Churchill, M.D. Chicago.

II. Our Present Knowledge of the Physiology and Chemistry of Gastric Digestion, as applied to vomiting in Infancy. Alexander C. Eastman, Springfield, Mass.

Wasserman Reaction in Infants and Children.—By Frank Spooner Churchill, M.D. Diagnosis of congenital syphilis at times is very difficult. The Wasserman reaction is a valuable aid in diagnosis, especially in obscure cases such as late hereditary syphilis.

The author reports results of investigation among 101 cases studied at the Children's Memorial Hospital, Chicago. They obtained 39 positive results; of these 39 positive results 30 were undoubtedly syphilis, this opinion being based upon the family history or personal development of physical examination, in any way suggestive of syphilis, and in the present state of our knowledge of the serum reaction we are not willing to regard them as certainly syphilis, although we are unable to explain the positive reaction on any other basis.

The cases were not selected ones except in a few instances, but represented the usual run of infants and children seen in the children's hospital. The results of the study tend to show that congenital syphilis is quite a wide-spread disease in infants and children of the hospital class, but as this is the first large series of hospital cases subjected to a careful clinical study plus the serum reaction, and as these cases number the comparatively small number of 100, definite conclusions as to the actual frequency of this taint are not warranted from this study, but must wait until more extended investigations along this line have been made. It is extremely desirable that such studies should be pursued on a wide scale in different medical centers, the results published and analyzed. Such studies are being continued at the Children's Memorial Hospital.

Dr. Lucas: Dr. Churchill's paper.

I was glad to hear Dr. Churchill take up this subject which to my mind is a very neglected and also a very important subject to the pediatrician. Dr. Churchill has touched on perhaps some of the most interesting and most important points. I cannot agree with Dr. Churchill on some of his points, which I will try to bring out during the discussion. First of all I wish to emphasize the importance of realizing that a certain large group that came to our outpatient departments with an indefinite diagnosis, the diagnosis of anaemia and debility, really have a background of syphilis. The fact that a certain number of cases of rickets give a positive reaction is no objection to the fact that a positive reaction means syphilis. It simply is an indication that syphilis has broken down the structure, has undermined the system, and allowed rickets to come in. The same thing is true of tuberculosis; the same thing is true of practically all the diseases which are placed on top of the syphilitic background. The principal group in which positive reactions were obtained, as Dr. Churchill brings out, are the ones of the bony system. The bony system in syphilis, as far as the syphilitic reaction goes, is practically one hundred percent positive, and most of the workers in the Wasserman reaction, as such, have concluded that a positive reaction is found in almost every case where the bony system is involved. The importance of that in cardiac conditions is now beginning to be brought before the medical profession.

Warton, in his paper, shows that without any other evidences of syphilis, from very minute and very careful histological investigations of autopsy material where it showed no other lesions, syphilis was present in the cardiac muscles. Anyone who has worked in the pathology of syphilis knows what a difficult proposition you face when you try to show it by histological methods. That, I think, is a very important question in regard to group 5, especially as to the first four cases which Dr. Churchill rules out. You could not assume, it seems to me, that any one of these four cases were not syphilitic. A positive Wasserman reaction means syphilis whether you find that organism by histological examination or not. In this work it is necessary to have the work done by a neuropathologist. I would go as far as to say that the ordinary pathologist's word would not be accepted in the work for the diagnosis of true syphilitic lesions. The staining and the finding of these lesions are very difficult and need a special staining, so that ruling out these cases it is very hard to determine. For example, you can have a positive tuberculin reaction in a patient and at autopsy it is very hard to find where the lesion was, or what gland was affected, only discovering in a general way some indication of tuberculosis. Now the same thing is true, I believe, of syphilis. Besides the points which Dr, Churchill brought out and which, to my mind are very important, I would add another, now that we are emphasizing the importance of breast feeding by wet-nurses. I think the importance of the Wasserman reaction in that class of cases cannot be overestimated. In carrying out that work which Dr. Talbot started at the wet-nurse bureau, he very wisely started by having all the wet-nurses examined. Out of the last 21 wet-nurses examined there, three gave a positive Wasserman reaction. Now these wet-nurses, so to speak, represent the cream of their class, for if there is any thing whatever objectionable in the history or examination they are refused. When accepted, a complete physical examination is made and if any lesions are found or anything whatever questionable they are ruled out. So that these 21 cases tested were all cases where the physical examination as far as could be made out was absolutely negative, so that your physical examination cannot be absolutely relied upon in these cases, and a Wasserman test should always be done. I would mention a very interesting case which came to my attention within the last few months. A mother's blood was sent in for the test as they were doing a certain number of routine tests in the wards. Her reaction was positive. We were very much interested as she showed no lesions whatever, but she gave birth to a well, pronounced syphilitic baby. There is a case where the physical examination is negative, and, if that woman went out as a wet-nurse the danger to the infant would be great. The question of the Wasserman reaction brings up important points in regard to Colles' law and Profeta's law, whether a healthy mother can give birth to a syphilitic child, and whether a syphilitic child can infect its healthy mother. Several hundred tests have been carried out with regard to this in France and Germany. In some of the cases the syphilis may be latent not showing itself, as Dr. Churchill has said, until puberty, and by indefinite signs during the intermediate period.

Dr. Morse:—Dr. Churchill's paper.

I know very little about this subject from actual experience, but there were several things in Dr. Churchill's paper which seemed of special interest. In the first place, I am surprised at the frequency with which Dr. Churchill obtained a positive reaction. It would seem to me to be of great interest to try the Wasserman test on one hundred well babies from the hospital class to find out how many of them give a positive reaction and to use this as a basis for comparison in estimating of how much importance the Wasserman reaction is in determining the presence of syphilis in the causation of other disorders. I am inclined to think that it will be found in a certain number of apparently well! children just as it is in adults. In connection with the Wasserman test in babies, it is very much easier to get the cerebrospinal fluid by lumbar puncture than it is to get the blood from the baby.

Dr. Lee:—Dr. Churchill's paper.

Dr. Churchill has taken a very broad point of view. No one doubts but that the pathologically syphilitic child or adult will have a positive reaction, the normal child or adult will have a negative reaction. I cannot help admiring Dr. Churchill's courage in picking out these children with a great many diagnosis and having a Wasserman test done on them. The one great criticism of the Wasserman test is that we have not had enough tests done upon a great many ordinary diseases. I think the feeling nowadays is very distinctly that the Wasserman test is not a specific test; and since we are leaning toward the idea that the Wasserman test is not a biological test but a chemical test, there does not seem to be any reason why the Wasserman test should be absolutely specific. We all know that you occasionally get a negative Wasserman test when you have a perfectly definite syphilitic lesion, a lesion from which you can recover the spirochæte. Moreover, you can get a positive Wasserman test in certain conditions, and Dr. Churchill has named a few of them, in which there is no apparent possibility of their being syphilitic. It seems to me that group 5, table 3, would probably include a goodly number of debilitated children whose sera were so modified by various diseases that they gave a positive Wasserman reaction without any error in technique or without any syphilitic taint. I think this series of cases would illustrate the fact that the Wasserman test is a very valuable one but that it is not absolutely accurate or absolutely specific. In this connection I will cite the instance of a New York man who was asked if a positive Wasserman reaction meant syphilis. He replied: "Why, I tell no one that the Wasserman reaction means that a person has or has not syphilis. All I say is, that if a person has a positive reaction he probably needs mercury."

Dr. Lucas:—(following Dr. Morse) Dr. Churchill's paper.

Dr. Morse speaks about testing the spinal fluid and not the blood in infants. The Wasserman reaction as such in congenital syphilis will give a negative reaction in the majority of cases of spinal fluid examinations unless the central nervous system is involved. Therefore the examination of a series of spinal fluids in congenital syphilis would not give any indication of the value of the Wasserman reaction. I would give this illustration. A prominent surgeon sent in blood from an undoubted case of carcinoma. He received a positive reaction. He did not operate. The patient died of carcinoma and the surgeon said that the patient did not have syphilis, whereas going back into the history it was proved beyond that the case had latent syphilis, but that was no reason why the case should not have carcinoma. A positive Wasserman reaction means that that person has been at some time infected by the spirochetæ. It does not mean that the active process going on at the present time need necessarily be syphilis.

Dr. Talbot:—Dr. Churchill's paper.

Noguchi has developed a skin test with luetin which is performed by the intradermal injection of a suspension of dead spirochetæ, and at the end of 48 hours a papule forms underneath the skin which develops and takes various forms, which may either remain in the papular stage, or may develop into pustules, and then break down and disappear gradually. I have a photograph of a positive Noguchi leutin test, which I thought would be of some interest. Noguchi says that it is likely to be positive in the late stages of syphilis and is not unlikely to be positive in early hereditary syphilis.

Dr. Churchill: in closing.

The work in connection with the Wasserman investigations has been done by men specially trained, Dr. H. K. Nicoll, and Dr. J. F. Waugh. They have done the work purely because of their interest in it.

With regard to the spinal fluid, I should have said that in one of my negative cases, that of a two month's old Monogolian idiot type, the reaction was negative, whereas, as Dr. Lucas states, the blood might have shown a positive reaction. With regard to the subject of breast feeding, I cannot reiterate too strongly the danger of putting any of these infants to the breast of women who are undoubtedly healthy, and also the reverse. It is not necessary to put these infants to the breast, the milk can be pumped out and fed to the infants, and in this way the risk of a syphilitic baby infecting a well woman can be obviated.

It seems to me that with this serum test we have a weapon which ought to be of value to us in making a more thorough clinical study of this disease, and if this taint is as widespread among our hospital cases as it seems to me to be, I think we ought to get after it and do the work as carefully and exhaustively as possible.

PHYSIOLOGY AND CHEMISTRY OF GASTRIC DIGESTION.

Dr. Ladd:—Dr. Eastman's paper.

I was interested to note in some bismuth work on the stomach, the number of cases in which there is a residue at the time of the next feeding. I believe from what has been done on normal babies who are digesting their food properly that there is often a residue at the time of the feeding. It can be shown that this residue does not mix with the new food that goes into the stomach, but passes out quickly to the duodenum owing to the influence of the peristalsis which has been excited by the new lot of food. That is, if you give bismuth feeding and if the feeding interval is 3 hours, if you X-ray the baby's stomach at the end of three hours you will find a considerable residue. Then if you give a normal feeding without bismuth you will be surprised to see how much of that residue has passed out into the duodenum and how little has been mixed with the new stomach contents. Whether this residue causes disturbance or not depends on the character of the digestion that has been going on. I have been interested in many things that Dr. Eastman said, especially with regard to the feeding in the atrophic cases. I am convinced that many atrophic babies are underfed, and that is often the primary factor in their condition. In regard to the vomiting of breast-fed babies being due to too high percentages of fat in the breast-milk, I think there is another factor equally important, that is the over-distension of the stomach from excessive nursing. If one takes the pains to weigh babies before and after a breast-feeding in many cases, one will be surprised to note the quantities that little babies will sometimes take from the breast, babies of four or five days sometimes taking as much as 3 1-2 or even 4 oz. a quantity that one would not think of giving in substitute feeding. Such overdistension is often responsible for the vomiting and might be attributed to excessive fat in the mother's milk.

Dr. Talbot:—Dr. Eastman's paper.

I should like to disagree with Dr. Ladd's statement that a young baby in taking three, four or five ounces necessarily overdistends its stomach, because breast-milk contains a high percentage of lactalbumen which is not digested in the stomach. As I understand it, the breast milk can run right through the stomach into the intestines, and a two ounce stomach can let four ounces go through it without its being overdistended. There is one other point—I may have misunderstood Dr. Eastman, but I think that sugar and proteins can also cause vomiting when given in excess, and I think sugar even more commonly than too high proteins.

Dr. Eastman:—in closing.

In connection with what Dr. Ladd said about overfeeding, I purposely left that out because it was necessary too confine the subject in this paper chiefly to the direct indigestion so called, chemical and physiological. The main point is, it seems to me, that in times past we have considered the infant's stomach as distinctly different from the adult's stomach, and I think the thing for us to bear in mind is that it is recognized now that an infant's stomach is the same as the adult's stomach, only on a smaller scale, and should be treated accordingly ; thus, many of these cases of indigestion and vomiting should be treated in the same manner as in adults, in other words by examination of the stomach contents. The case that Dr. Talbot spoke of in connection with sugar as the cause of vomiting would come under the head of shyperacidity.

ST. LOUIS PEDRIATRIC SOCIETY STATED MEETING FEBRUARY 23.

An Anatomic Study of Contracture of the Tensor Fascia Lata. Demonstration by Dr. Phil. Hoffmann who said that in paralysis following poliomyelitis, next in frequency to contraction of the tendo Achilles is that of the tensor fascia lata. He showed that with the hips in extension and the lower limbs approximated in the median line, the tensor fascia lata, on account of its anatomical attachments and course, must act as an abductor of the hip if flexion is not permitted, and, vice versa, as a flexor if abduction is prevented. In either flexion or abduction the ends of the muscle are approximated and, consequently, the uninterrupted assumption of either of these positions leads to its permanent shortening. He said that it is quite natural for the helpless child to lie in bed with its thighs separated, and that this, often aided by heavy diapers, leads to early contracture of the tensor facia lata. The contracture is frequently not recognized until it has made considerable progress, because the parent or nurse, and occasionally the physician sees nothing unusual in the child' posture as it lies with the thighs separated. Later, however, when an attempt is made to place the child in the upright position, in which the lower limbs, through gravity, naturally fall into the median line, or if the limbs for any other reason are approximated, the contracture, which occurred in the position of abduction, is immediately converted into a flexion deformity, and it is often only then that it is recognized at all. Dr. Hoffmann called attention to the necessity of carefully watching patients with paralysis of the hip controllers and not permitting them to uninterruptedly hold their thighs in the abducted position. The mother or nurse should spend a short time each day to cross the child's thighs to the limit, at the same time keeping the hips in extension. If this is done, contracture of the tensor fascia lata will not occur.

The demonstration was illustrated by means of the living subject, the cadaver, a mechanical model, and photographs.

Dr. Hoffman:—Paper of Dr. Archer O'Reilly.

Mr. Chairman:—I was glad to hear Dr. O'Reilly speak on this subject in the way he did. For deformity there is little excuse. Contractures should not occur when they so easily can be prevented. I do not like the use of splints in the early treatment. A good plan is to have a child carried about on a canvas covered gas-pipe frame during the acute stage, and watch for tendency to contractures. Contractures occur through the long continued uninterrupted assumption of any position, such as plantar flexion or equinus at the ankle, and they can be prevented by daily manipulation to the full limit in a direction opposed to the impending deformity. This, I believe, is preferable to the use of fixation apparatus, and is just as effective. The manipulation need be for but a brief period each day. It must be understood that while mild corrective manipulation easily prevents deformity or any increase thereof, it has comparatively little effect in overcoming already existing fixed contractures. When the muscles of the trunk also are paralyzed, it is more difficult to control deformity in the spine than in the limbs, but, with proper care, it can be done. There is no difficulty in instructing mothers in the manipulation. Let the mother first see you do it, then supervise her a few times to see that she does it right.

TRAINING TEACHERS OF EXCEPTIONAL CHILDREN

The summer Training Course for teachers of special and ungraded classes and of exceptional children in general, which the National Association for the study and Education of Exceptional Children has been giving from July 8th to Aug.17, has closed successfully. The course was under the direction of Dr. Maximilian P. E. Groszmann who has been the first in this country to show the full perspective of the problem. Main stress in the lessons was laid upon a minded proper distinction between redeemable children and those who are feeble and should be under custodial care. In the estimation of Dr. Groszmann it would be preversion of the function of the ungraded class in day schools to open them largely for abnormal children of the feebleminded type.

The following list of lectures will give an idea of the wealth of opportunities which were afforded the teachers who attended the course:

Educational Lectures: Dr. Groszmann himself spoke on the following subjects:

"The Problem of the Exceptional Child."
"The Backward Child vs. the Feebleminded Child."
"The Exceptionally Bright Child."
"Data and Tests in the Study of Exceptional Children."
"Provisions and Methods for Exceptional Children."
"Classification and Teminology." (two lectures)
"Standard Mental and Physical Tests" (two lectures)
"Children's Records."
"A Rational Course of Study."
"Branches of Instruction and Method in Ungraded Classes."
(three lectures)
"Schoolroom Routine."
"The Regime of the Exceptional Child, mental, emotional, disciplinary, physical."

Mr Mirick, Assistant State Commissioner of Public Instruction, Trenton, N. J. representing Commissioner Kendall, spoke on "The Importance of he Individual Child."

Associate City Superintendent, Dr. Edward L. Stevens, New York, spoke on "What Teachers and Mothers must do for Exceptional Children; with a historical review of the problem and remarks on classification." In this lecture he paid tribute to Dr. Groszmann as having been the first to give the full perspective of the subject and to have stimulated the establishment of ungraded classes in New York and elsewhere.

Superintendent J. W. Carr, Bayonne, N. J. gave a statement of how he has been attacking the problem of retarda ion in his own school system. He furnished interesting data.

Mrs. Cynthia M. Tregear, Brooklyn, Superintendent of the International Sunshine Branch for the Blind, spoke on: "What We can Learn from Training the Senses of the Blind Child."

Mr. W. H. Groszmann, Principal of "Herbart Hall" and the "Observation Clinic,"the two educational institutes of the Association under whose auspices the course was held, gave three lectures each on "Principles and Methods of Manual Training," "Principles and Methods of Physical Training," and "Plays and Games." The lectures were illustrated by practical demonstrations in the classes.

Medical Lectures: A number of medical experts and specialists gave their co-operation. They threw light on the physical and medical side of the problem of the exceptional child.

Dr. Emil Schmitt, New York, President of the Association, opened the series by speaking on "Physical Conditions Underlying Backwardness."

Dr. F. C. Ard, Plainfield, spoke on "Recognition of Various Defects of Vision and Hearing." This and most of the other lectures were illustrated by practical demonstrations on the pupils of the schools of the Association and on the student teachers themselves.

Dr. Otto Glogau, New York, demonstrated the "Function of the Auditory and Upper Respiratory Apparatus in the Exceptional Child." (two lectures).

Dr. J. J. Cronin, borough Chief, Manhattan, N. Y. Board of Health spoke on: "Correlation of Physical Condition and Educability."

Dr. Sidney W. Haas, New York, Explained how the physician will make a diagnosis of exceptional states in children, and how our teachers can and must co-operate.

RETROSPECT OF CURRENT PEDIATRIC LITERATURE.

Orthopedic Surgery

Under the Charge of

JAMES K. YOUNG, M. D.

Professor Orthopedic Surgery, Philadelphia Polyclinic; Clinical Professor Orthopedic Surgery, Woman's Med. College, Pa.

The Surgery of Bones and Joints—The author believes that surgery of the bones and joints has fallen behind other branches of surgery, e. g., abdominal surgery, and, furthermore, that it must be founded on a correct pathologic base and not simply on chemical experience.

The tissues involved in the structure of the bones and joints are bone-tissue proper, marrow, periosteum, cartilage, synovia, and ligament. Of these the only active tissues in disease are the marrow, the inner layer of the periosteum, and the synovia. The bone-tissue is only a shell in framework within which is the active marrow. The cartilage is not subject directly to inflammation and disease. The outer layer of the periosteum is fibrous tissue and is simply a covering for the bone. The joint ligaments should be considered merely as extensions of the outer layer of the periosteum, and serve simply mechanical purposes.

Bone marrow is of two kinds; the red or lymphoid marrow, and the yellow, or fatty marrow. Pure tuberculosis of joints is limited to the red marrow and the synovia, and therefore affects only that part of the bones where the red marrow is found. Acute pus infection occurs, on the other hand, in the yellow marrow of the shafts of long bones.

The inner layer of the periosteum is analogous to the marrow of the bone underlying it and is subject to the same disease.

The synovia is a lymphoid structure and bears the same relation to the joint as marrow bears to the bone.

After destruction of a joint and ankylosis, the synovia and the red marrow disappear. And with them disappear the diseases that existed in them alone, such as tuberculosis and arthritis deformans. Therefore by producing an ankylosis one may cure these diseases.

A Consideration of the Action of the Extrinsic and Intrinsic Muscles of the Foot,—from an Anatomical and Mechanical Standpoint, By Floyd V. Brown. *Am. Jour. Orth. Sur.*, Aug. 1912.

When a foot is pronated the greatest amount of motion from supination to pronation occurs in the calcaneo-astragaloid joint. The astragalo-scaphoid joint has the next largest amount of motion.

The contraction of the muscles of the foot produces a different result when the foot is free to move than when the foot is fixed on the ground in the act of bearing the weight of the body. In the former case the force of contraction is applied at the joint of insertion of the muscles and the foot moves; in the latter case, the force is applied at some point proximal to the insertion of the muscles. This point is where motion is most easily possible. The adductor muscles, when weight is borne on the foot, tend to move the internal malleolus upward, forward and outward, and therefore, to prevent or correct pronation. The abductor muscles tend to move the external malleolus forward and slightly upward, and, therefore, to pronate the foot. But the adductors are stronger normally than the abductors, and a continued position of pronation occurs only when the adductors are weakened.

To prevent or correct pronation, which occurs chiefly in the calcaneo-astragaloid joint, the author recommends the use of a plate which is raised beneath the inner side of the heel and prevents pronation in this joint. Other means of strengthening the muscles must, however, not be neglected.

On Operation for Pott's Disease of the Spine. By Russell A. Hibbs. *Jour.A.M.A.*, Aug. 10, 1912.—The author describes an operation which he has employed thus far in forty-seven cases with apparently good results. The object of the operation is to produce an ankylosis of the spine at the seat of the disease. A longitudinal incision is made over the spinous processes. The periosteum is split along the upper and lower edges of the spinous processes and the laminæ and stripped back of the bases of the transverse process. Each Spinous process is then fractured near its base and turned downward so that its tip comes in contact with the base of the fractured process immediately below it. A bridge of bone is also made between the laminæ by elevating a small piece of bone from the under surface of each one and turning the piece down until its free end comes in contact with the lamina below it. All of the diseased vertebræ and a healthy one on each side are treated in this manner.

The periostem and the supraspinous ligament are sutured together over the spinous processes, and the skin wound is closed.

A steel base is applied to prevent motion of the spine. The patient remains in bed for eight to ten weeks, and sits up during the following four weeks. Walking is permitted at the end of three months. The brace is worn for another month, and is then taken off for a time each day until it is finally removed at the end of four or six months.

Twenty of the patients have been without support for from three to twelve months, and have shown no increase in the deformity and no symptoms of disease.

Simplified Treatment of Congenital Club-Foot.—By B. E. McKenzie. *The Med. Council*, Aug. 1912. The author sums up in a few paragraphs his treatment of congenital club-foot. During the first year of life the feet should be manipulated twice daily. Just before the child begins to walk, an anesthetic should be given and the feet stretched and dressed in plaster. It is rarely necessary to cut to overcome the Varus, unless it be to cut the plaster fascia. This operation should be repeated every two to four weeks until the Varus has been over-corrected. The equinous should next be over-corrected usually by a section of the tendo Achilles. Thereafter a night brace should be worn to maintain the correction; and a shoe should be worn during the day raised on the outside to maintain a position of valgus during walking.

Syphilitic Arthritis (*Allg. Wien. Med. Zeit.*, 1911, LVI, *p*, 538).—**Pollak** demonstrated to the Vienna Gesellschaft fur Kinderheilkunde a boy aged 5 years, who had been suffering for six weeks from swellings of both knee-joints. There was at first a slight rise of temperature. Salicylates had no effect: Roentgen rays showed the absence of any lesion. A positive Wassermann's reaction proved the presence of syphilis. He mentioned the case of a girl, aged 11 years, who for five years had intermittent hydrops of the knee without pain or fever. In cycles of fourteen to twenty-one days there would appear regularly a swelling of one knee, followed by that of the other. Wassermann's reaction was positive: 0.3 grm, salvarsan was injected. Eight months had since elapsed without any return of the hydrops.

The Treatment of Pott's Disease at the Sea Breeze Hospital.—Leonard W. Ely tells of orthopedic methods in use at the Sea Breeze Hospital at West Coney Island, which are very simple and very successful. They are such that the little patients are able to be in the open air all the time, and active whenever possible. They are happy under this treatment, and improve rapidly. The object of treatment is to splint the spine effectually. Any man skillfull in the use of plaster-of-Paris can successfully treat Pott's disease after these methods. Children under three years are kept reclining in a Bradford frame. So are older children who have large deep psoas abscesses with contraction, and sinuses in such a position that a jacket cannot be worn. The method of preparation of this splint and its application is carefully described. The child never sits or stands, and spends the whole twenty-four hours in the frame. Children over three years wear the plaster jacket. Its application is described. Abscesses are aspirated under aseptic conditions. Illustrative histories are given. The results have been brilliant. Complicated operations are not done at this place. Fresh air, good food, and careful general attention are part of the treatment.—*Medical Record.*

DISEASES OF THE ALIMENTARY SYSTEM

Under the Charge of

JAMES WARREN VAN DERSLICE, M. D.

Assistant Professor of Pediatrics, Rush Medical College, Chicago, Ill.

Two Cases of Pneumococcal Vulvovaginitis in Children.—By Harold Chapple, M.A., N.C. Cantab., F.R.C.S. Eng., Obstetric Assistant to Guy's Hospital. *The Lancet.* According to modern text-books vulvo-vaginitis in children should be classified under two headings—specific and simple. The former group includes those cases that are due to a specific organism—the gonococcus. All other cases are grouped in a heterogeneous mass under the so-called simple group.

I wish to consider the mass included in the "simple group": first, in order to show that such an inadequate grouping of cases, that are in reality widely dissimilar, is very apt to give an erroneous idea as to prognosis and treatment in any particular instance; and secondly, that the prognosis and treatment in this group, as, indeed, they are in any case of vaginal discharge, are materially influenced by an accurate knowledge of the micro-organisms present.

In deciding upon a treatment in any individual instance in the group under consideration, one must be aware of the fact that in a certain number there is present an associated local lesion, such as an eczema of the vulva, etc., but in the majority there is no such lesion, and the inoculation must be regarded as accidental.

In conducting a bacteriological examination of the discharge it should be remembered that certain organisms appear to be the normal inhabitants of the vagina. On the other hand, others are not to be regarded as such; and although our knowledge is not yet complete, as in a direct smear one encounters organisms that do not appear on the culture media and with whose exact nature we are not at present conversant, nevertheless information of the greatest value is obtainable. Certain vaginal discharges are of much graver import than others. There is no question that the female genital tract is cleared with much greater difficulty of certain organisms, and their presence is of much more vital importance to the individual than others.

From the results of the investigation of some cases of this kind I have selected two which I am recording as affording excellent examples of these points.

Case 1.—A girl, aged 13, had had scarlet fever last summer. Otherwise she had been quite well. She had noticed a discharge for three days, but was unable to account for its onset. She did not feel ill. The discharge was yellowish, but not offensive. There had been no trouble with micturition. Menstruation had not commenced.

Case 2.—A girl, aged 11, had been in hospital in October, 1910, with an indefinite attack of pain in the gluteal region, associated with abdominal pain, passage of mucus and diarrhœa, which had rapidly yielded to treatment. Three days previous to her second visit to the hospital in 1912 there had been a profuse greenish-yellow offensive vaginal discharge. She was a clean girl. There was no history obtainable to suggest an origin. There was no trouble with micturition.

These, then, are two almost identical cases. The patient is in each a young girl, and there was no history obtainable of a nature suggesting an origin for the trouble. The discharge was of sudden onset, was profuse, and at first of a greenish-yellow colour, rather thick, and offensive. The inflammatory process affected mainly the vulva. The vagina was definitely affected too, but chiefly in its lower part. The region round the vulva and anus was markedly excoriated by the discharge. There was no history of any burning sensation on micturition; there was no evidence of urethritis. The mucous membrane of the vulva was deeply engorged, and on it minute red points were visible, more deeply coloured than the rest. These marked the orifices of the glands opening on to the surface in this region.

From the swab from the pus in both cases I cultivated the pneumococcus. It was present also in the direct smears. The first case unfortuately did not return to hospital for further treatment. The second patient was sent on to Dr. J. W. H. Eyre, who has allowed me to carry on the bacteriological part of this work in his laboratory, and has given me the benefit of his great experience. He confirmed the presence of the pneumococcus and carried out the subsequent vaccine treatment.

For the first few days the child was kept at rest and the parts were bathed at frequent intervals in warm lotion. An autogenous vaccine of 5,000,000 pneumococci was given. The acute nature of the inflammatory process rapidly subsided, and then warm vaginal douches of zinc permanganate were given under low pressure. Had the patient been an adult it would have been wiser first to plug carefully the orifice of the external os with a suitable tampon in order to prevent the possible ascent of organisms during the douching process. This was not feasible in this child. The inflammatory process did not spread further than the vagina, and in ten days the discharge was almost gone, but penumococci were still present in the vagina. Consequently another vaccine of 5,000,000 was given, and the local treatment was continued. The condition rapidly cleared up, requiring only four vaccines in all, and the patient got quite well, the vaginal swab showing no pneumococci present.

Some Experiences with Russo's Typhoid Fever Test.—F. W. Rolph, A.M., M.D., Toronto. *Medical Record*, Aug. 19, 1911. Russo described a new urinary test which gave a positive reaction in typhoid, measles, smallpox, and in some cases of tuberculosis. It is performed as follows: to four or five c. c. of urine add four drops of 0.1 per cent. aqueous solution of methylene blue; mix well and examine against light; a mint or emerald coloration is positive, whereas any bluish tinge renders the test negative. Russo reported the reaction as being unaffected by heat and also pointed out that the gradual resumption of the bluish tinge, as the patient advanced in the disease was a valuable prognostic sign.

There is one important fallibility of the reaction, which at first bothered us a great deal, until one of us discovered the cause, viz., that urines containing bilirubin will give a reaction which differs so slightly from the typical green, that they cannot be used in employing the test. We thought then that perhaps the results in typhoid were due to the presence of small amounts of bile, but this could not be demonstrated in our positive typhoid urines. This difficulty undoubtedly militates against the success of the reaction.

To sum up, we may say: (1) This test is very simple and easily performed, but one should have seen the typical color once or twice to be sure of one's results. (2) Bile should be tested for, and in the event of its presence, the urine should be discarded. (3) The earlier in the disease the more likely and the more typical the reaction. This is very important, as it differs, in this respect, from other laboratory tests, except blood culture. (4) The slightest tinge of blue must call for a negative interpretation, though experience will often enable one to distinguish the returning blue tint of a convalescent typhoid patient, from that of a normal or nontyphoid urine. (5) The reason of the mint or emerald-green color is doubtful, but it is probably a reduction test, depending upon the presence of unknown bodies in the urine. (6) We did not find the gradually returning bluish tinge of much assistance in prognosis as so many of the dangers of typhoid are, as it were, accidental, and not directly dependent upon the severity of the infection.

Prevention of Typhoid Fever in the Military Service.—F. P. Reynolds, M.D., *Virginia Med. Semi-Monthly*, July, 1912. To prevent the spread of the disease we believe the early detection of cases to be of the most importance, especially of the ambulant and mild cases which ordinarily escape observation. Next in importance is the detection of carriers and of bacillus excretors. All cases of undetermined fever, suspects, and contacts are isolated, and specimens of blood, stools, and urine are taken and cultures made. Patients are isolated, and the disinfection of clothing, personal equipment and sanitary fixtures is thorough. No convalescent typhoid patient is released from hospital until after three negative bacteriological examinations of the stools and urine have been made at six day intervals.

When troops become infected with typhoid fever, we consider certain measures essential for the prevention of an epidemic. Briefly, they consist in moving the camp to a new site which has all possible sanitary advantages, the immediate separation of the companies already infected from the others; with the disinfection of the tents and personal property of the patients and their tentmates; the isolation of those who have been closely associated with the sick, the examination of all men of the regiment twice daily for ten days, and the taking of temperature of those showing high pulse rate or other suspicious symptoms.

The experience of the Army with typhoid vaccination is so well known that I will not take your time in reciting the details. Up to the present moment about 70,000 officers and men have been given the prophylactic without untoward results in any case. The resulting benefits have been such that we feel confident that our troops can avoid typhoid fever in any locality and under the most unsanitary conditions. As you know, the prophylactic is now compulsory for all officers and enlisted men in the Army and for all recruits and men re-enlisting. Compulsory vaccination against typhoid has, I believe, never been attempted in troops in the field until mobilization in Texas of last year. The ouctcome of this interesting experiment was that no cases occurred among the 20,000 soldiers on duty in camp for a period of about five months, from March until July; no cases have occurred in any of these troops since that time.

Some Types of Intestinal Indigestion Occuring in Young Children. By Langley Porter, M.D., San Francisco. *California State Journal of Medicine*. Sept. 1911. Any who have had experience in the examination of the stools of young children cannot fail to have been struck by the frequency with which free starch is found, nor can they have failed to notice that almosst invariably the presence of this starch in the stools is accompanied by a very definite, although not uniform, series of clinical symptoms. It is also not infrequent to find stools which show with the starch an abundance of fat, free, or in the form of fatty acids, or as soaps. In infants who for the most part are fed dilutions of cow's milk, especially when these dilutions are high in fat, the presence of fat or its derivatives is extremely common; when in marked excess this is invariably a sign that the child is being damaged by its food. Among older children we are frequently confronted by a clinical picture of extreme indigestion with metabolic disturbance in which the only finding in the stools is a great waste of fat. We have then, from the point of view of stool examination, three definite types of intestinal indigestion occurring in children, the first in which the child shows partial or complete inability to digest starches properly, the second in which the child shows an inability to deal adequately with fats, and the third in which there is a deficiency of digestion both for fats and starches.

The question of starch indigestion is one that is very closely allied to other problems of intestinal digestion, especially those relating to the digestion of cellulose and sugar. The cases range from those of mild degree, in which the clinical picture is of a child who is not gaining weight as well as it should, who is restless at night, who is invariably plagued with attacks of urticaria, who has concentration of urine with enuresis, especially of the nocturnal type.

The skin, even when urticarial wheals are not present, gives evidences of urticarial irritation and very many of these cases show true dermatographia. This type is characterized simply by very slight macroscopic alteration of the stools; while the microscope for the most part, shows merely an abundance of loose starch granules and cellular waste after the stools have been treated with iodine.

The successful dietetic treatment of these cases depends upon first determining which of the food elements the child is not digesting well and finding to what degree the digestion is deficient. In severe cases where it is necessary entirely to withhold starch or fat as the case may be, the physician must devise a dietary that will supply sufficient calories to maintain the child's nutrition and energies. In cases where fat and starch digestion are both impaired, it is a task of extreme difficulty, but in our case we have found that sugar was well tolerated and this has not been so great a task as it apparently sometimes is. It is probable that climatic conditions may have something to do with this. Finkelstein has shown that the intolerance of such children to food, sugar especially, has been markedly increased when the external temperature is excessive.

Treatment of Whooping Cough,—Translation from the French, by Dr. Emile Burnor, New York City, continued from July 13th, 1912. *Le Progres Medical.* Uncomplicated whooping cough of Adolescence at the terminal period, when the period of paroxysms comes to a close, suspend the use of all Antispasmodics, such as Valerian, Bromides, Belladonna, Antipyrin, and use the Balsams, as for example.—

Terpinhydrate	Gm. 1
Sodium-Benzoate	Gm. 2
Syrup of Acacia	150 cc

Take a teaspoonful every six hours for a child five years of age, or the following:—

Tarpinhydrate	1 1-2 Gms.
Cherry-Laurel Water	15 Gms.
Syrup-Turpentine	60 Gms.
Syrup-Tolu	75 Gms.

Dessertspoonful, three times a day, child five years of age. when the catarrhal period extends for several weeks, a change of air is indicated, especially if the child is losing weight, and appetite. A course of arscenical, or sulphur mineral waters is sometimes the best way to re-establish the health of the little patient.

The convalescing child must be carefully watched, and Auscultation should be frequently made, during the months which follow, to be sure that no complication is left untreated, such as Emphysema, Bronchial Dilatation, and Glandular enlargement in the nose and throat, etc. Treatment of Bronchial Pneumonia, the principal complication of whooping cough, is identical with that of the bronchial pneumonia of measles, which we have indicated in a previous article, to which the report is referred.

The vomiting when by their abundance may cause a serious obstacle to alimentation, and they must be overcome by energetic treatment. Teaspoonful doses of black coffee, after meals; in severe cases in older children use Laudanum. After the child has vomited, make him eat again, and give him one half a drop to one drop of Laudanum, or give him for three hours, a teaspoonful of the following mixture:—

Menthol	Gm. .25
Alcohol	Gm. .40
Syrup Acacia	Q. S. to 150 cc.

In rare cases, where gastric intolerance is absolute, use Nutrient Enemas,

Milk	150 Gms.

Yolk of one egg to be given two or three times a day. The sublingual ulcers, when they have a tendency to become deep, must not be neglected.

Local application of iodized glycerin, or the following lotion,

Cocaine Hydrochlorate	Gm. .10
Borax	Gms .3
Cherry Laurel Water	
Glycerin a a	Gms. .10

The nervous accidents, such as restlessness, insomnia, etc., must be overcome by antispasmodics, to which we may add Potassium Bromide .20 to .50 Gm. for each year of age, or when the insomnia is persistent, the narcotics, such as chloral tricome or veronal, the convulsions necessitate the use of high doses of bromides, and tepid baths for long periods.

When the spasm of the glottis or syncopes, which sometimes carry your patients away suddenly, use artificial respiration, pulling the tongue or faradization of the diaphragm.

Treatment of whooping cough, outside of adolescence, first in the nursing child.

As a rule the treatment is the same as in an older child, but you must be chary of internal medication, and insist mainly on hygienic measures. First, see that the child is nursing properly, especially after each spasm of coughing. At the time of the spasm, avoid the danger of suffocation by holding the child's head, and if necessary, remove with the finger, all mucus which cumbers the pharynx. In case of fever, give hot baths every three hours. It is the only means to prevent Capillary Bronchitis, or Broncho-Pneumonia. If the spasms of coughing are too frequent, you will have to choose some active medication, giving the preference to Bromoform, which very young children bear well, at a dose of one drop for every three months of age, and the Marfans formula is one of the best.

Bromoform	48 drops
Oil of Sweet Almonds	15 Gms.
Gum Acacia	15 Gms.
Cherry Laurel Water	4 Gms.
Syrup q. s.	120 cc.

Twenty drops, three times a day for a child 6 months old. Belladonna is strictly contra-indicated below the age of two.

Antipyrin might be used in suppositories, or in enema at the rate of .20 to .50 Gms. for a child of one year. In the adult, although the coughing is frequent, and painful and somewhat intense, yet prognosis is always benign. The treatment of whooping cough in the adult is the same as in adolescence, you must avoid giving Antipyrin in large doses, to those patients who have kidney trouble. On the other hand, opium medication, which one hesitates to use in children, may here be prescribed without fear against the violent spasms, and sometimes fumigations, and inhalations of antrasthmathic powders, and cigarettes, is very beneficial.

R. Oppenheim.

BOOK REVIEWS

Pellagra History, Distribution, Diagnosis, Prognosis, Treatment, Etiology — By Stewart R. Roberts, S. M., M.D., Associate Professor of the Principles and Practice of Medicine, Atlanta College of Physicians and Surgeons Atlanta, Georgia; Physician to the Wesley Memorial Hospital; Formerly Professor of Biology in Emory College. With eighty-nine special engravings and colored frontispiece. Price, cloth, $2.50. St Louis: C. V. Mosby Company, 1912.

Pellagra is treated in this volume of 265 pages in a thoroughly, practical and scientific manner. Every feature and phase of this dread scourge; its ancient history down to modern outbreaks is noted and discussed.

The contents of this volume are as follows: I. General Consideration, II. History and Geographical Distribution; III. Classification; IV. Alimentary Tract in Pellagra; V. Skin in Pellagra; VI. Nervous System in Pellagra; VII. Other Systems and Changes; VIII. Diagnosis and Prognosis; IX. Treatment of Pellagra; X. Causes of Pellagra.

The various theories brought forth to explain its unknown etiology are given in short, the sum total of scientific knowledge up to date of this disease is presented in this volume. The author and publisher deserve great credit for this work, and a place should be found for it in every medical library.

PEDIATRICS

VOL. XXIV NOVEMBER, 1912 NO. 11

EDITORIAL

POINTS IN THE EXAMINATION OF CHILDREN

In the examination of an infant or young child every care should be taken to avoid abruptness or hurry. We must remember that we have to do with beings who act not from reason, but from instinct; that any sudden movement frightens them, a little pressure hurts them, and in either case a cry and a struggle bring the examination abruptly to a close. Again, young children, as a rule, dislike the sight of a strange face, and if old enough to understand the object of the visit, are already prepared to look with a distrust upon the "doctor." Still, it is a mistake to suppose that children always make unmanageable patients. They are no doubt quick to take fright; but it should be the constant care of the practitioner to avoid any look or gesture which may arouse their suspicions. If he look, speak, and move gently, and do not hurry, most young children will allow themselves to be examined thoroughly without great difficulty.

On entering the room it is well to accustom them to our presence before we even appear to notice them at all. This interval can be usefully occupied by questioning the mother as to the onset of the illness and the character of the early symptoms. We can also take this opportunity of inspecting the motions or vomited matters. In searching into the history of the case it is especially desirable to obtain some starting-point for our investigations. The question "When did the indisposition begin?" often receives only a vague reply; while an inquiry as to the time which has elapsed since the child was last in good health may elicit an account of more or less interference with nutrition and indefinite malaise extending over a considerable interval. Some tact is often required in obtaining a definite account of the beginning and early progress of the illness. It is important to avoid suggesting a reply by the character of the question, while it is often necessary to be minute in our inquiries in order to stimulate a flagging memory.

In infants and young children much may be learned from mere inspection of the face. It is an advantage in these cases to find the patient asleep. We can then study at leisure the colour and general expression of the face, the form of the features, the presence or absence of lines or wrinkles, and remark if the nares act in respiration or the eyelids close incompletely. We can besides notice the attitude of the child, can count the pulse and respiration, and can observe their degree of regularity or any deviation from the healthy state. Even if the child be awake, many of these points can be noticed if we approach quietly and do not speak to or offer to touch the patient. Any movements he may make at this time in his cot must receive due attention, for they often convey valuable information.

THE VALUE OF CLOSE OBSERVATION IN EXAMINING CHILDREN

In the new-born infant the tint of the face immediately after birth is a dull red. The redness, however, soon begins to subside; in a day or two the complexion assumes a slight yellow tint and then passes into its normal coloring. The yellow tint and its diagnosis from infantile jaundice must be accepted after very careful examination.

The clear fresh complexion of a healthy baby or young child is familiar to everyone. A loss of its purity and clearness is one of the first indications of digestive derangement. The face becomes muddy-looking, and the upper lip whitish or bluish; blueness of the upper lip in early life is a common sign of laboured digestion. In some children difficult digestion is shown by an earthy tint of the face which spreads to the forehead. It appears a short time after the meal and may last several hours. In chronic bowel complaints the earthy tint is constant. It is common in cases of chronic diarrhœa in the infant; and if at the same time there is much emaciation, the derangement is likely to prove obstinate. In syphilis, the prominent parts of the face, the nose, cheeks, chin and forehead—assume a swarthy hue. In lardaceous disease the complexion is peculiarly pallid and bloodless; in rickety children whose spleens are greatly enlarged it has a greenish or faint olive cast and in cyanosis the face has a characteristic leaden tint, the conjunctivæ are congested, the eyelids and lips thick and purple. Lividity of the skin round the mouth and nose with a purple tint of the eyelids is common as a result of deficient aeration of the blood. In severe cases the cheeks at the same time have a dull white colour, and the symptom is an unfavourable one. In the spasmodic stage of whooping-cough the face looks swollen as well as livid, the lips and eyelids are purple and thick and the conjunctivæ are congested and often bloodshot.

In addition to the actual tint of the face the general expression must receive attention. In a healthy babe the physiognomy denotes merely sleepy content, and no lines mark the smooth uniform surface. Pain is indicated by a contraction of the brows which wrinkles the skin of the forehead. This is especially noticeable if the head is the seat of suffering. If the pain be in the abdomen the nose often looks sharp, the nostrils are dilated, and the child draws up the corners of the mouth with a peculiar expression of distress. In every case of serious disease the face, even in repose has a haggard look, which must not be disregarded. If this be accompanied by a hollowness of the cheeks and eyes the result is a ghastly expression which cannot escape attention; but a distressed look may be seen in the face although there is no loss of roundness of feature. If this be the case, even in the absence of striking symptoms, we may confidently predict the onset of serious disease.

THE MEANING OF CERTAIN OBJECTIVE SIGNS IN THE SICK CHILD.

Often an inspection of the face will help us to a knowledge of the part of the body affected. Many years ago M. Jadelot pointed out certain lines or furrows in the face of an ailing infant which by their position indicate the seat of the derangement, thus:

The oculo-zygomatic line begins at the inner canthus of the eye, passes thence downwards and outwards beneath the lower lid, and is lost on the cheek a little below the projection of the malar bone. This line points to disease or derangement of the brain and nervous system.

The nasal line rises at the upper part of the ala of the nose and passes downwards, curling round the corner of the mouth. This line is a constant feature of abdominal mischief, and is never absent in cases of gastro-intestinal derangement.

The labial line begins at the angle of the mouth and runs outwards to be lost in the lower part of the face. This is more shallow than the preceeding. It is a fairly trustworthy sign of disease in the lungs and air-passages.

These lines have a distinct practical value and should be always attended to. We should also notice if the eyelids close completely, for imperfect closure of the lids during sleep is a common sign of weakness. Moreover, it must not be forgotten to ascertain the condition of the pupils and the presence or absence of squint. The nares must not be forgotten. If they act in respiration the movement is a common accompaniment of laboured breathing, and if accompanied by a high temperature is very suggestive of pneumonia. Even the shape of the feature must be attended to. An elongated head with square forehead and small lower jaw are characteristic of rickets; a broad flat bridge to the nose, especially if conjoined with prominence of the forehead and absence of eyebrows suggests syphilis; and a big globular head surmounting a small face and little pointed chin indicates unmistakably chronic hydrocephalus.

The attitude of the child as he lies in his cot is not to be overlooked. Sometimes it is characteristic. A healthy infant or young child, even if lying on his back, inclines to one side and turns his head so as to bring the cheek in contact with the pillow. If a baby be found lying motionless on his back, with closed eyes and face directed straight upwards to the ceiling above him, he is probably the subject of serious disease. This position may be seen when the child is unconscious, as from tubercular meningitis; or is profoundly depressed, as in acute inflammatory diarrhœa. If the child lie on his side with his head greatly retracted on his shoulders, it is a suspicious sign of intra-cranial disease. If in such a position the breathing is audible and hoarse, the case is probably one of laryngitis, or there is some impediment to the passage of air to the glottis. If the patient be found in his cot resting on his elbows and knees with his forehead buried in the pillow, or if he sleep lying on his belly, there is no doubt abdominal discomfort. These positions are common with rickety children. If the child press his eyelids against the pillow, turning partially on his chest, we may suspect intolerance of light. (Eustace Smith, third edition, "Diseases of Children.)"

LES DEUX SYNDROMES PANCREATIQUES CHEZ LES TUBERCULEUX

The part played by the pancreas in nutrition is important as well as complex; its secretion seems to be twofold; the pancreatic juice and a substance of unknown nature which regulates the equilibrium of glucose in the system as well as other processes of nutrition which are less exactly defined. These two secretions seem to originate the former in the glandular acini and in Wirsung's canaliculi, and the latter in Langerhans' islets and in the circulatory system of the gland. Therefore two classes of symptoms will be the clinical result of pancreatic insufficiency: dyspeptic symptoms caused by insufficient modification of fat, carbohydrates and proteids; and symptoms resulting of disorders of the nutrition, the most important of which are hyperglycœmia, glycosuria and perhaps also azoturia, lipuria and polyuria. As to hypersecretion of the pancreas there are very few data and it is next to impossible to ascribe definite symptoms to this condition. In short the pancreas must be considered as a most important gland the secretions of which regulate the functions of the system, and this is especially true as regards consumptive patients.

Diarrhœa is the most frequent symptom of pancreatic insufficiency in consumptive patients, and very often it bears very little or no relation to consumption, so that it may be termed "dyspeptic diarrhœa." A careful chemical and microscopical examination shows an abnormal amount of food residues, fat, carbohydrates, muscular fibres, etc., and the data of coprology are then quite typical of pancreatic insufficiency. In some cases the amount of amylase in the blood is distinctly below the normal, and in some of the patients observed by Prof. Lœper it had fallen to 10 or even 8, instead of 17 which is the normal amount, according to Achard and Clerc. Sometimes there is no diarrhœa or no obvious sign of digestive disorders, but then an abnormal loss of weight out of proportion with the pulmonary lessions, or a slight glycosuria, lead to a diagnosis which is soon confirmed by the examination of the fœces.

Conversely hypersecretion of the pancreas has been not unfrequently observed by Prof. Lœper at the beginning of consumption. Its symptoms are: good appetite, even bulimia, and at the same time distinct wasting and increase of amylase in the blood and urine; presence of a proteolytic urinary ferment which very likely is trypsin sometimes, after the meals, some temporary glycosuria; there is also an increase of indican in the urine, although there is no diarrhœa, and an increase of sulfo-ethers, although there are no intestinal fermentations; Cammidg's reaction is quite positive and in the fœces there is an abnormal amount of very active amylase. The microscopical examination detects no food residues, and clinically there is neither constipation nor diarrhœa.

Tuberculosis of the pancreas is not very commonly met with, but Prof. Lœper has examined lately 16 pancreas of patients who had died of consumption, and he gives most interesting information as regards morbid anatomy. Some of the pancreas which he has examined were normal, but most of them were congested, œdematous, infiltrated with lymphocytes, and with perilobular, intralobular and multicellular sclerosis; granular especially fatty degeneration was frequent, the latter in about 50 per cent. In some of the pancreas examined there was evidence of hyperplastic reactions which were well marked not only on the lobules but also on the islets of Langerhans.

These microscopical and macroscopical post-mortem appearances have been confirmed by the results of experiments on animals, conducted with Dr. Gh. Esmonet, and which Prof. Lœper records in detail.

As regards therapeutics, Prof. Lœper holds that his conclusions are of a great clinical importance, and he has been led to recommend what he terms the intensive pancreatinisation of consumptive patients; this method has given him very satisfactory results in cases of consumption where selerotic or degenerative atrophy of the pancreas has followed hypersecretion, since it is then necessary to stimulate the pancreatic secretion.

For further details on this question see: Lœper & Esmonet, la pancreatinisation intensive dans la tuberculose. Congres Francais de Medecine, Paris, 1910 and Bulletin Medical, October, 1910.

PEDIATRICS

ORIGINAL ARTICLES

TREATMENT OF TUBERCULOUS GLANDS OF THE NECK IN CHILDREN.*

By W. GREENWOOD SUTCLIFFE, F.R.C.S.

Senior Surgeon Royal Sea Bathing Hospital; Surgeon Metropolitan Asylums Board Children's Home; Surgeon Victoria Home for Invalid Children, etc., Margate.

In considering the treatment of tuberculous glands in children, more especially those of the neck, it must be remembered that in a very large number of cases there exists a probability of spontaneous cure, if suitable surroundings are provided and the causes of irritation removed. Perhaps the greater number of the infections of childhood follow tonsillar and pharyngeal disturbances and, though it is doubtful if more than a small proportion of these are primarily tuberculous, it is quite certain that the enlarged glands, which follow an attack of tonsillitis, furnish a very suitable soil for the propagation of tubercle, and that, unless the child is removed to healthy surroundings and the possibility of further infection diminished by the removal of the infected tonsils and clearing the nasopharynx, they will soon be typically tuberculous. It is at this stage, before caseation has taken place, that the traditional Margate treatment, by rest, fresh air, and diet, produces its best results, and in by far the greater number of cases operative or vaccine treatment can be dispensed with. On the other hand, if the glands have existed for more than six months it is probable that caseation has already begun, and that operation will sooner or later be called for.

Observations carried out at the Metropolitan Asylums Board's Home for Children, where during the last fifteen years over 4,000 children with tuberculous lesions have passed through my hands, show that even when glands have existed for much longer periods they may still disappear. I have more than once

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**The London Practitioner.*

noted on admission, "Large mass of glands in neck will require operation," and found that, in a few months, there were no glands to be felt. In private cases such cures are of course more frequent. The children are, as a rule, in far better health; they are able to have greater individual attention; and their prospects of acquiring sufficient "immunity" are obviously greater than in poor-law children. A reference to the case books of the last few years show many instances similar to that quoted, so that, unless definite signs of fluctuation are present, hopeful though guarded pronouncement as to the future is always made.

The essential point in the treatment of these cases is that sufficient rest should be given to the patient. A fruitful source of error is the want of explicit directions on that head from the practitioner who was originally in attendance. The child is sent to the seaside with swollen glands in a state of unstable equilibrium; he is allowed to play about all day, and to dig on the sands. As a result, he becomes thoroughly exhausted; the glands are kept in a state of perpetual hyperæmia due to continuous muscular efforts, and the result is that too often the small patient is brought to us with a well-established glandular abscess. Undoubtedly, the ideal method in the larger cases is to put the child to bed on a veranda with a good sunny aspect, and to keep him there night and day, until the glands are definitely diminishing in size. But for the ordinary case, our practice is to send the child out of doors all day in a spinal chair. He very soon becomes accustomed to the chair, and by this means, he can be given the maximum of fresh air with the minimum of fatigue. The head and neck are kept as still as possible by bandaging firmly over a large pad of absorbent tissue, which makes an efficient and decidedly more comfortable method of fixation than the splints and collars that are sometimes ordered. If a veranda is not available, he should sleep at night in a room with the windows wide open.

Since 1905, when tuberculin was re-introduced as a factor in practical therapeutics, it has been extensively tried. It is even yet, too early to speak dogmatically on the results obtained. The cases in which apparent benefit has resulted, that is to say, when the glands have quickly disappeared, are precisely those that would have recovered equally well without it, and certainly the observation of children, treated with and without tuberculin, has revealed no preceptible difference in the rate of absorption of affected glands, whatever its effect on the opsonic index may have been. If given, it must be used with caution, as too large a dose in children will produce a very serious reaction. The appropriate dose for each child can only be determined by experiment on the patient himself. Except in those few children who show extraordinary susceptibility to tuberculin, a dose of one 50,000th of a milligramme, increased after two weeks to a 25,000th of a milligramme, does not seem to be followed by any bad symptoms. The dose is administered hypodermically, and is given every eight days. The best time to administer it is the evening, when the child is about to be put to bed, as in that way one insures that he is rested afterwards for twelve hours at least. Larger doses are apt to produce a considerable local reaction, which very often brings suppuration in its train.

Dietary considerations must be dealt with on commonsense principles. Children vary enormously in the amount of food that they are capable of assimilating, and much harm has often been done by hard-and-fast rules as to the amount of food, especially milk, that a child is forced to take. In the nonoperative treatment of glands, as in all forms of tuberculous disease, sufficient time must be given. The few weeks for which the average patient is sent here is seldom in any way sufficient; the glands often diminish considerably in that time, but are apt to recur after the child is back in his old surroundings. A stay of from six months to two years is required, if a more or less lasting "immunity" is to be acquired. In children, practically the only cases that require operation are those in which suppuration has already taken place. Soft, large glands, especially when painless, and small hard ones can safely be left alone; the former if due to enlarged tonsils will in most cases disappear with the removal of the causes of irritation, the latter are firmly encapsuled and do little or no harm.

Where sinuses exist, as the result of the bursting of a superficial collection of pus, an operation is usually called for to remove the deep-seated gland that is the cause of the trouble. Several such cases have come under my care after prolonged vaccine treatment, and have healed rapidly after the removal of the focus of disease. In the case of boys of ten years and over operation can more readily be recommended, as the presence of the glands is often a bar to his remaining at a public school, or presenting himself for examination for the Navy. In the latter case, if the scar is sufficiently small no objection appears to be raised; several of my patients have been accepted and are now in the Service. Quite young infants are sometimes the subject of very troublesome forms of gland infection, most probably caused by milk infection at the time of the first dentition. In these, whole groups of glands are rapidly affected and quickly suppurate. Usually, one of the more superficial glands has either burst or been opened before the case reaches me, and some weeks have to be spent in improving the child's general health, before an operation for removal of the entire affected area can safely be undertaken.

There is considerable risk in the operation, for which a skilled anæsthetist and a rapid operator are alike essential. It was not till I had acquired a considerable experience in gland surgery, that I felt justified in doing a complete clearing operation in a child under eighteen months of age. The great object in all gland operations should be to remove the disease as completely as possible, avoiding at the same time unsightly scars and injury to nerves. The incision should, therefore, always be made in the creases that run more or less obliquely across the neck. If there be a large inflamed swelling obscuring the natural fold to be seen in the normal state, traces of it can generally be found on the opposite side, and the incision should be made in the corresponding line. Incisions parallel to either border of the sterno-mastoid are apt to leave scars, that widen and later become the seat of keloid. For the larger cases, where an exposure of the whole length of the internal jugular vein is needed, the surgeon will find if he is prepared to take a little extra trouble that two parallel incisions, the upper one in the fold before referred to, the lower a little above the clavicle and curved slightly upwards at its posterior end, will afford quite sufficient room for the efficient removal of glands, and leave an immeasurably superior cosmetic result to any of the flap operations formerly employed. These transverse, or rather oblique, scars fade away into something very nearly approaching invisibility, a factor of very considerable importance both to the patients and their relatives.

In the smaller cases, in which a bulging, fluctuating swelling presents under the angle of the jaw, in front of or over the sternomastoid, with a thickening to be felt beneath it, the pus may be contained in a disintegrating superficial gland. But often what appears to be a gland is only a bag of pus connected with the caseating glands beneath, through an opening that it has made in the cervical fascia. The treatment called for does not differ from that followed when the glands themselves are obviously the seat of the suppuration, as where one is broken down its fellows are certainly infected, and the entire corresponding area should be cleared out.

The details of the operations for glands are simple enough, but their satisfactory performance through a small incision makes considerable demands on the operator's skill. A firm sand-bag having been placed under the neck and the head turned to one side, the incision is made, as a rule, through the lower of the two folds in the skin that run obliquely from the middle line. In the first instance, it need not exceed an inch and a half in length. Both edges are freed from the platysma and the fascia beneath for half inch or more to insure mobility, and the upper edge is then dissected up as far as the upper border of the swelling, taking care not to puncture it. The branch of the facial to the lower lip is carried up, when the fascia is divided, out of the way of the knife, and a disturbing deformity is thus avoided. Retracting forceps are then placed on each edge, and the upper one drawn well up towards the angle of the jaw.

At this stage, if there is present one of the bags of pus already referred to, as much of its wall as possible should be removed and its cavity well wiped out with a dry swab. If there is a definite gland presenting, its posterior edge will certainly go beneath the sterno-mastoid, and the border of that muscle is the next thing to be defined. When the muscle is spread out over a bulging gland, the border is to be found much more forward than would be expected; but when, as is often the case, the bursting of the gland has taken place through the substance of the muscle, unless the real anterior edge be picked up, the surgeon will be undesirably uncertain as to his whereabouts. For this reason, the original incision is carried well forward of the muscle, and the fascia is picked up and divided from the anterior end of the incision till the border of the muscle is reached, which is then freed from the glands beneath with the gloved finger, as far as convenient in all directions. With the muscle then well retracted and this edge of the wound drawn out of the way as required, sufficient exposure can be obtained for the safe delivery of all the glands in the anterior triangle, and most of those in the posterior. The length of the incisions, and the consequent size of the scars, will depend on the trouble the surgeon takes in obtaining proper retraction.

Either the upper or lower group of the glands is now seized with forceps, and its removal proceeded with. If the dissection is begun from above, it is best to free the anterior margin of the gland, as the facial vein can then be seen and avoided; when traced downwards, it is a guide to the position of the internal jugular. The glands are then gradually freed from surrounding structures by dissection with the point of a sharp knife, care being taken to remove the capsule with the gland. At the upper border of the group the presence of the digastric fibres, passing downwards and forwards, warns the operator that he is nearing the region of the internal jugular vein, and, still more important, the spinal accessory nerve. This is put on the stretch when the sterno-mastoid and glands are pulled upon, and is liable to be injured if the knife is used on the muscular side of the glands. It is safe, if two golden rules are adhered to—always to cut directly on to the gland, and to make sure of a good light. Injury to the vein can always be avoided if the case is being operated on for the first time, and if its connections are unobscured by bands of cicatrical tissue. As the glands are freed, they are pulled out as far as possible in one mass, but it will usually be found that a few, in intimate relationship with the postero-lateral aspects of the internal jugular vein, will require removal separately. They require careful dissection, but no case is completely dealt with unless the vein is seen quite clear on its outer aspect in the whole field of view. If it be decided to begin the dissection from below, the lowermost gland is seized with the gland forceps, and the mass peeled upwards off the vein by light touches of the knife on the undersurface of the capsule. This is adherent to the sheath of the vessels, and the vein falls away readily as touches are made on the fascia connecting them.

Glands in the submaxillary region are easily removed through a comparatively small incision, but there are always two or three in intimate relationship with the salivary glands, which must not be overlooked. Glands in the upper part of the posterior triangle, that is to say, those above the spinal accessory nerve, are dealt with by prolonging the original incision backwards over the sterno-mastoid. The posterior border of the muscle is then lifted up and held forwards, the glands are seized with forceps, drawn backwards, and cleared by cutting on their superficial surface till they are freed from their attachments to the fascia about the vessels, when they are left with the gland forceps attached. The hindmost of the group is then lifted up, and the whole mass dissected forwards off the muscles till the front limit of the dissection is reached.

At the present time, when cases are submitted to operation comparatively early, this incision gives sufficient room to remove glands from nearly as far down as the clavicle. It must be remembered, however, that the spinal accessory nerve is apt to run between groups of glands. When this is seen in the dissection in front of the muscle, it is best to remove the glands in three groups, those above the nerve before it enters the muscle being removed from behind it, separately to those removed by the dissection in front. A further dissection must be undertaken for the glands below its course in the posterior triangle, and for those in the subclavian triangle. This incision begins about an inch above the clavicle, at the inner border of the clavicular insertion of the sterno-mastoid, and extends to well over the edge of the trapezius according to the size of the group to be removed; if necessary, its tail can be prolonged upwards towards the upper incision. The skin and platysma are raised from the muscles and glands beneath. The external jugular vein at the inner end of the incision can usually be avoided, and drawn forwards with the sterno-mastoid. When this muscle is freed and raised up, the innermost of the group of glands is sought for, and is found in intimate relationship with the sheath of the main vessels. Its upper surface should be clearly seen before seizing it with the gland forceps, when a few touches of the knife will free it from the bulging internal jugular, and occasionally from the subclavian. When sufficiently freed from these structures, the finger can be inserted between the group and the veins, and the entire supra-clavicular group dissected backwards. When freed and lifted from the floor of the triangle, the glands along the back of the internal jugular are freed from their attachments, as far as the place where the spinal accessory crosses the space. The nerve can, as a rule, be defined, if the trapezius be pulled backwards and its oblique course remembered.

In the larger cases, I always drain for twenty-four hours, by a tube running from the upper incision beneath the sterno-mastoid to the outer end of the lower opening. I always drain the smaller cases for a like period of time, as where there has been much dissection there is generally post-operative oozing. The wounds are stitched closely with very fine needles and gossamer thread. The stitches are removed on the third day in all cases, thus avoiding stitch marks. For ligatures, I invariably use Van Horn's catgut in private practice, but we have had no trouble at the hospitals here since using iodised catgut, prepared after a method described by Mr. Steward, of Guy's. Gloves are always worn, and asepsis aimed at.

If, during the operation, the spinal accessory nerve is seen to be wounded, it should be sutured at once, as there can be no question as to the unsightly deformity produced by the wasting of the trapezius, and the still greater disability, if the nerve is divided on the inner side of the sterno-mastoid. I have seen many instances of both types of deformity, and in some a marked spinal curvature resulted.

The question arises, when the nerve has been divided on the inner side of the muscle, whether a search should not be made with a view to its suture and repair. I have operated on one such case with nearly complete success, part of the sterno-mastoid and the whole of the trapezius recovering. The patient was a girl of 17, from whom I had myself cleared out a large suppurating mass four years previously. The case was certainly a bad one, as the skin was extensively damaged before the first operation, and there was a great deal of thickened tissue removed. When seen the second time, the scar of the original operation had widened, and was in itself a deformity, so that I felt justified in cutting out the scar to improve the young lady's appearance, even if I failed to find the nerve ends. The upper end was found comparatively easily, lying in a mass of fibrous tissue on the vein, and was easily identified by its bulbous end. The lower end was by no means so easily found, but it was eventually differentiated from strands of fibrous tissue against the muscle, and safely united to the upper end.

The operation is tedious and uncertain, as it is quite possible that a piece of the nerve has been resected with the glands at the original operation, and I do not think I should care to undertake it, except in cases in which I was personally responsible for the deformity. The internal jugular vein is usually avoided by keeping the knife close to the gland capsule; it is very seldom necessary to divide it deliberately and peel it up with the glands, as formerly recommended. If it be accidentally wounded, and it is not possible at once to seize the opening with forceps, it is better to tie above and below the seat of injury, remembering always that the vagus is close beneath it, and had better not be included in the ligature. The vein is in most danger when a previous operation has removed the glands from its surface, so that frequently it is actually adherent to the scar. There is often a thickened mass of scar tissue, with a few glands beneath it, to the outer side of the vein, and it is in wounds, caused in dealing with this tissue, that the most troublesome hæmorrhage is met with. Up to the present, I have always been able to ligature it, but I have heard of several cases in which the patient has been sent back to bed with an artery-forceps still on, or with the wound plugged tightly to arrest the hæmorrhage.

Suppurating glands over the parotid, in front of the ear, are best dealt with by a longitudinal incision down to the capsule of the gland; the caseous matter is then shelled out with a sharp spoon. The facial nerve lies in the substance of the parotid, and, as the glands are always on its superficial surface, the nerve is in no danger if ordinary care is used.

In the after-treatment of these cases, especially if the dissection has been an extensive one, a considerable amount of rest is required. I usually keep the child lying down for at least a fortnight, the neck being bandaged with a fairly voluminous dressing to act as a splint. If the patient is allowed up too soon, especially if some tuberculous matter has escaped over the tissues during the operation, a boggy swelling is apt to occur which sometimes breaks down into thin pus, and causes the whole wound to become unhealthy Such cases take months to heal, unless the wound is opened up and the tuberculous debris scraped away. If this has to be done, it is well to leave the wound open and dress frequently with hot cyanide gauze. A thickening under the scar is of very frequent occurrence, after the wound has apparently healed soundly. It usually disappears in a month or six weeks, but gives rise to a good deal of anxiety, as the parents have to be convinced that the glands are not recurring.

It is especially after the glands have been removed, that I think tuberculin is of some slight service. I usually wait at least a month after operation before giving it, and then use the doses, previously referred to, for about three months. My impression is that the thickening, if present, clears up more rapidly, and infection in neighbouring areas takes place less frequently, when tuberculin is used. Small glands in the posterior triangle, with which it has not been thought necessary to deal at the time, have often diminished and eventually disappeared, I think, more rapidly than before tuberculin was used. The method of treatment by puncturing the breaking-down gland, which has been used a good deal by those working with opsonic methods, is uncertain in its results. When successful, their methods certainly leave little to be desired in the way of scarring, but the puncturing requires to be repeated several times, involving, in the case of a nervous child, repeated anæsthetics. For that reason, if proper care is taken to avoid unsightly scars, the operative treatment remains the safer, more certain, and effective method.

PERSONAL OBSERVATION UPON THE USE OF THE CALORIC METHOD OF INFANT FEEDING.

By

FRANK C. NEFF, M.D.

Kansas City, Mo.

In the presence of so much literature in the last four or five years concerning the use of the caloric method, the author's excuse for now writing upon the subject is that sufficient time has elapsed to allow one to have had a considerable experience and to have formed broader views as to its usefulness.

One who has seen the Germans disregard our American method of percentage feeding cannot at first understand why they do not avail themselves of the opportunity to modify cow's milk in the effort to find a formula which approximates the infant's need for digestion, energy and growth. The Germans apparently attain their object by basing the feeding of the child chiefly upon the caloric or energy value of the food. They use commonly simple milk dilutions with the addition of what carbohydrates they deem necessary. Whether or not their methods are as successful as ours, one must admit that the weak point in the feeding of an infant as it is often practised in this country is in spending one's whole effort in securing a too-intricately modified milk and paying little or no attention to the infant's needs in the daily quantity it receives.

To illustrate, suppose we consider two normal infants of the same age, two months, one weighing 9 and the other 12 pounds a contrast which is sometimes seen. Is it reasonable that a hard and fast rule should be followed of feeding them both the same number of ounces and the same strength? Obviously if the same amount is fed, based on the needs of the larger child, the smaller one will be overfed and may suffer therefrom. Again, many babies are fed every 2 hours or oftener and allowed to have all they will take. Suppose an infant take 6 ounces at each feeding and should nurse throughout the day and night, which sometimes happens. That infant will be getting 72 ounces in the 24 hours, which is over twice as much in quantity as any infant should have. Now if that food has been compounded without reference to its food value there is a threefold menace to the child, namely: too frequent feedings, too large a daily quantity, and often too high nutritive content of the food. Presistent overfeeding, is the commonest cause of intestinal and nutritional disorders, and is evidenced by colic, vomiting, changes in the frequency, appearance and consistency of the stools, and often disturbed sleep and a failure to gain in weight. The bottle baby must be watched closely for these danger signals. It is for the purpose of helping to hold the infant on a diet which suits its needs, neither over nor underfeeding that the caloric content of the food should be known. This does not mean that we should neglect estimating the percentage composition of the food. The calculation of the percentages to a reasonable degree permits not only the adaptation of the various food elements to the infant's growth and digestion but also allows the estimation of the food value in energy units which is of use as a check or guide in quantitative feeding. Caloric feeding is quantitatively correct, as one writer* has said, and in that regard is more scientific than percentage feeding. The objection has been rightly raised that a caloric basis for the feeding of infants recognizes only the energy requirements, leaving out of consideration what is needed for growth and development. But with Chapin† and others I believe that the system has its value as a control or check. We must know what elements the child needs, what the food contains, and that this food is digestible. Then with a knowledge of its caloric value we can more nearly estimate how much to feed the infant. Even then we must vary the amount, giving a food of higher value to the premature or poorly-nourished child. Now the estimation of the caloric value of milk and its simple modification is not the difficult matter that it might at first glance seem.

The caloric system takes for granted that the baby is being weighed regularly and accurately,* a custom which must be followed in any system of feeding. With the weight known, the physician can estimate easily whether the baby is getting food in proportion to its body weight.

Heubner estimated the requirements of an infant by measuring the elimination of heat and determining the respiratory quotient. A normal infant during the first 6 months requires approximately 44 calories per pound body weight, and during the second 6 months 38 calories per pound. For the first and second week of life a smaller number of calories is advisable.*

The estimation of the caloric value of the usual milk modifications which one will use is easily made by reference to the number of calories contained in an ounce of the milk, the sugar, the cereal or other ingredient, and then using the number of ounces required to give the daily requirement of calories.

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* Blanner; N. Y. Med. Jour. May 14, 1910, p. 1008.

† Chapin: N. Y. Med. Rec., May 28, 1910, pp. 910-911.

*An accurate scales is needed for weighing feeding cases, one that will weigh fractions of an ounce. No spring scales can be so reliable as the old fashioned scoop with beam and extra weights. Such a scale has been made for me by Fairbanks, Morse & Co., Kansas City, and costs $9.00. A detail that is necessary in weighing an infant is that the child should be weighed stripped, just before feeding, at the same time daily, and the weight recorded. This can be done in most homes.

* Houghton: Post-Grad. Feb. 1910, p. 142, advises the use of an arbitrary total daily content of 125 calories per day for the 1st week of life, and 210 C. for the second week.

As an example take a normal child of 3 months weighing 10 pounds, requiring 44 C per pound, or 440 C in 24 hours. One ounce of full milk yields 20 C, therefore it will require 22 ounces of full milk to secure the 440 C. It is not advisable, however, to give a child of 3 months full milk which would contain too much fat (4%). Suppose you wish to give it 2 per cent. fat. This is attained by diluting whole milk with equal parts of water. This reduces the calories one-half, or 220. It cuts down the sugar one-half, making it 2 1-2 per cent. Suppose you wish to make the sugar percentage 7 1-2 per cent. Then add 5 per cent. sugar or 1 ounce of sugar in 20 ounces of your mixture. One ounce of ordinary sugar contains 123 calories. This added to the 220 C which the half milk contains gives 343 C, still 100 C. below the desired 440 C. Barley flour or oatmeal, 1 ounce, (100 C) can be added in the water which is used to dilute the milk. Or skimmed milk containing 11 calories to the ounce can be added in place of part of the water. All simple modifications can be secured by the use of top milk, full milk, skimmed milk and the addition of sugar or flour.

Convenient Measures and Caloric Values of the Carbohydrates.

Cane Sugar, 2½ level tablespoonfuls–	=1	oz.	by	weight	=123 C
Malt Sugar liquid, 1 tablespoonful	=1	"	"	"	= 80 C
Dextri Maltrose, 1 heaping "	=1	"	"	"	=110 C
Milk Sugar, 3½ level "	=1	"	"	"	=116 C
Laibose, 1 heaping "	=1	"	"	"	=131 C
Flour, white, 4 scraped "	=1	"	"	"	=104 C
Flour, barley, 3½ scraped "	=1	"	"	"	=109 C

Calorie—Content in the Feeding of Incompletely Nourished Infants

Variety and Number of Cases.		Average birth rate.	Average age (months).	Average energy quotient per pound; infant gaining slowly or not at all.	Average energy quotient per pound when infant showed satisfactory progress in weight.
Marasmus..............	19 cases	7¼	3½	52	67
Simple stationary weight.	24 "	7½	1½	45	56
Slow gain in weight.......	15 "	7⅔	2⅓	52	62
Ileo-colitis chronic........	2 "	7¼	2	51	82
Chr. intest. indigest......	6 "	7½	2½	45	59
Prematurity..............	4 "	3½	2½	47	63

The personal experiences reported in this paper were gathered from the feeding of poorly-nourished infants or infants otherwise normal but not gaining well. These were babies who through a period of several weeks or months had lost weight, had not gained or had not gained sufficiently. Infants suffering from acute illnesses are not included. Some showed undigested stools, some had no gross abnormality in stools, some were cases of true atrophy, and a few had evidences of chronic ileo-colitis.

None of the 70 cases here included was over 6 months of age. The average age is two months and the youngest is two weeks.

All but one of these infants began to gain or showed a more rapid gain when the number of calories was increased.

The average number of calories required was 64 per pound.

Observing the cases in their symptomatic grouping it was found that of 19 infants with **marasmus** only two gained with an energy quotient of less than 44. Practically all of these cases required from 53 to 110 calories per pound. The average number is 67 calories per pound.

SIMPLY STATIONARY WEIGHT

There were 24 of these cases, of which only three gained with an energy quotient of less than 44. The average of these is 56 C. per pound.

SLOW GAIN IN WEIGHT

There were 15 of these babies, requiring an average of 62 C. per pound.

CHRONIC ILEO-COLITIS

There were two of these cases with an energy quotient of 82 C. per pound.

CHRONIC INTESTINAL INDIGESTION

These cases showed either obstinate constipation or occasional dyspeptic stools. There were 6 such infants. Their energy quotient was 59 C. per pound.

PREMATURITY

There are only 4 premature infants in this series and they gained with an average of 63 C. per pound. They were fed usually measured quantities of breast milk.

CONCLUSIONS

In these 70 infants that from various causes were not gaining properly it is seen that they received an average of 64 C. per pound of weight when gaining substantially.

Those suffering with marasmus required the most, an energy quotient of 67 C. per pound.

Those with the least nutritional disturbances required the least, an energy quotient from 56 to 62 C. per pound.

Not enough premature cases are here observed to be conclusive but the average energy quotient of 63 C. per pound confirms the commonly accepted opinion that premature infants require a much higher quotient than normal ones.

When one remembers how frequently infants of these classes are fed weak mixtures with no improvement in weight, the author offers these figures to further emphasize the necessity for increasing the caloric content of the food.

The author recognizes that other influences often played a part in the change in weight, and in this paper these could not be detailed. He does not wish to give the impression that the caloric estimation should be used to the neglect of the selection of the most digestible food and a regard for the percentages which are needed in each case.

INFANTILE MALNUTRITION; REPORT OF A CASE

By

JOSEPH W. GREGORY, M. D.
Cisco, Texas

The subject of this sketch, malnutrition—with its relation to artificial feeding of infants, will be the object of this paper, reporting a case of interest recently treated.

Year in and year out we read of many cases of interest as reported by pediatrists of various conditions arising from artificial feeding of babies, and I am convinced that much good is being done in arousing the proper interest along the line of a neglected field in preventive medicine by these contributors.

I want to first lay down one principle, as I see it; that every born babe has a God given right to suckle its mother's breast, and no excuse will be honored by myself, unless good and sufficient reasons are presented. Here are a few conditions which, when found to really exist, will justify any physician to advise artificial feeding. First, where no milk is secreted; Second, when the mother is ill with tuberculosis, syphilis, epilepsy, nephritis, septicemia, and where the mother is found to be addicted to the use of opiates.

When referrence is made to the enormous mortali y rate of infants in this country up to two years of age, one is appalled by the enormous reports of the deaths of children who are artificially fed.

Approximately, only about 3 per cent of breast fed children die of maladies due to digestive disturbances or defective nutrition. In a certain large city of this country, one-fourth of all the deaths occur during the first year of life, a greater portion of which prevail among artificially fed children.

In Munich, where the death certificates of infants are carefully recorded, it is found that eight times as many artificially fed children die as do those breast fed. Holt says, an intellectual city mother, who is able to nurse her child successfully for the first year, is almost a phenomenon, and only twenty-five per cent have been able to nurse as long as three months. The disinclination to nurse isspreading rapidly, evenamong the poorer classes, and it is among this class that the greatest amount of damage is seen, as the feeding of these children issupervised, in a slipshod manner due to the fact that these families are not able to buy, and prepare the best of artificial diets, and also on account of gross ignorance of the proper care of the child, and the following out of the necessary sanitary regime.

During the year 1870 to 71, it is said the mothers of Paris, France, were forced to nurse their babies on account of the absence of cows milk. During this period, infant mortality was reduced from 33 per cent to 7 per cent. We ask in thunder tones the question, when will the mothers of proud America learn the lesson of the proper care of their offsprings?

The average physician of the day should be sufficiently informed on these cardinal questions, and be prepared to give the mother's needed advice; warning them not to substitute anything as a food to take the place of the breast Few mothers, seem to have any knowledge of the dangers incident to this unnatural way of feeding, and it occurs to the writer that if they are ever informed on these questions, that it must be done by the physician alone.

No chemist has, or probably ever will devise, an artificial food that will take the place of mother's milk. Here is a ripe field for much effective work to be done in all Women's organizations. This important subject should be diligently discussed by women's clubs. No programme should be considered as complete among the various Women's Clubs without the subject of infant care and feeding appears on it. More real good could result to these subjects discussed by conscientious mothers than could ever be expected to accrue from a more voluminous attempted elucidation of the subject by men or even by physicians, as women are endowed with a more perfect gift to care for infants than men.

The physician is confronted with these problems in every day pursuit of his profession, and these vital questions and their solution, should be the aim of his life work to aid in the reduction of the infant mortality in the fields of his labors.

The conservation of the child, a burning question, is being so indelibly emblazoned upon the minds of modern thinkers and philanthropists, that at this time, there are being held important commisions, both local and foreign, where the problems of the proper rearing of infants are being discussed, and remedies offered by the best brains of many useful professions, and it is confidently believed, that in a very short while, as much, if not more attention will be given the young born child of America, as is given to the rearing of pigs and calves.

Bad feeding, is the factor that produces infantile Malnutrition, Marasmus, and all kindred conditions, more than any other. Each patient must receive careful consideration and every clinical symptom looked for in making up his diagnoses, and deciding upon a plan of treatment. The writer is constrained to believe that the family physician, when called to treat these cases, too often fellow a set rule, or a fixed plan of treatment of all cases as they come; using some favorite formulae; using the same drugs day in and day out and taking too much for granted. Each case of defective nutrition must be carefully considered upon its own clinical symptoms. It is found very often that these cases need very little, if any drugs; that when a proper food is found for the case in question the child will begin an almost phenominal recovery. If a system is put into a near normal condition, it will have its normal hungers and needs.

When the artificial food is found to contain too much fats and is deficient in proteids and other ingredients necessary for the childs support, another form of diet is to be substituted. Cows milk approximately is the nearest food to mothers milk, and when properly fed, giving to each case due consideration of dilution, these cases thrive and do well. The proper dilution of cows milk intended for use for the nourishment of calves requires no little knowledge. Raw cows milk is not fitted for the infants for they cannot digest it, especially so, in the first few months of infant life, and especially by those infants endowed with defective nutrition. From olden times, efforts have been made to render cows milk more digestible, and in all experiments and methods thus far adopted, dilution, in some form has been the result of all investigators. Dilution, says Gartner, of Vienna, has one drawback, the nutrition of cows milk and human milk is nearly the same, (the caloric value of both amounts to about sixty-two for one hundred cubic centimetres), but this value is diminished by dilution. Milk mixed with an equal quantity of water, has only thirty-one calories.

By adding sugar of milk, it can be somewhat increased. But as the caloric value of sugar of milk is much less than that of fat, it would be necessary in order to effect a complete compensation, to add much sugar of milk, which is impracticable, for other reasons. The calorific value of sugar of milk, therefore, is also less than that of human milk. In this connection, the writer, calls attention, to the importance of the selection of a good milk for infant feeding. No part of this important field of artificial feeding presents more perplexing questions for the medical attendant, than the selection of a good grade of milk for the child.

For the past fifteen years, Milk Commissions have been created in many of the larger cities throughout the country, and doubtless, much good has resulted from these Commissions; yet, many unsolved problems still remain unsolved.

Amesse, of Denver, Col., says, "In determining more specifically the agencies which contribute to the excessive mortality during the first year of life, none is more intrusively or persistently impressed upon the observer than the chain of evils resulting from a polluted milk supply. Here is our foremost adversary, and here lies our battle ground."

The average physician has had no training in the grading of stock and few fail to recognize important defects in the milk cow. In all localities where the services of a competent veterinary surgeon can be had, all milk stock used to furnish milk for the feeding of infants should be examined by the veterinary and all unhealthy cow's taken from the milk supplying herd. The writer hopes he will not be classed as an enthusiast, possessed of a hobby in this connection, but indeed, desires that he may awaken some interest along these lines. For several years, the writer has attempted to inform his patrons when it became necessary to secure cow's milk for an infant, to examine carefully the cow which is to furnish milk for a baby, giving some methods that I have studied out, which would enable one to detect a diseased cow.

The care in milking the cow has many important factors. The milk maid should never attempt to milk the cow without first cleaning her hands, scalding the milk vessels with boiling water, and then washing the udder not well, but thoroughly well. The milk then intended for the child should not be too old before using for obvious reasons; keepingit on ice well protected until ready to feed the child.

The sterilization and pasteurization of cows milk, for killing of numerous bacteria found in milk is another important factor. The mother should be warned to personally supervise the treatment of the milk and not to intrust this care to a servant. The technique of preparing the bottle by washing in boiling soda water, rinsing thoroughly and keeping the nipple scrupulously sterilised, should be indelibly impressed upon the mother, or nurse.

And in conclusion I wish to briefly report a very interesting case coming under the writer's attention for treatment. The case presenting many of the conditions arising from causes mentioned in this paper of the failure to select the proper food for the patient; the case presenting typical symptoms of mal-nutrition and deficient nutrition under the foods formerly used with the case. Therapeutically speaking, too much had been done for this little patient. The mere fact that the child did well from the first time it was fed a food that its system could assimilate, is proof enough that all the drug treatment it had was of no apparent use whatever. Is it not the experience of other men who have had an avarage experience in dealing with these cases; that too often, a case is drugged entirely too much?

CASE:—Child, four months of age, born April 29th, 1912.

Parents intelligent and capable; father, an ex-pharmacist, now Principal of High School in one of our Texas cities; mother gave the history of having tuberculosis in her family. History of a normal birth; child weighed 8 1-2 pounds; nursed mother for 11 days, when a mixed diet was advised with the view of weaning. The food given was diluted cows', milk, alternating with breast milk, when an unsatisfactory condition of bowel disturbances began. Various preparations of artificial food were tried, ranging from Condensed milk to almost every kind of infant food on the market. At five weeks of age, the breast was permanently refused the child.

A constant trend of symptoms followed, the patient maintaining an appetite that was remarkable. Large quantities of artificial foods were ingested daily without satisfaction, none seeming to satisfy the extreme hunger; rapid emaciation took place. On August 13th, 1912, when the writer was called to see the case, the following symptoms, as near as can be described here were found:—Temperature, subnormal, pulse weak and wavy, due to a very much lowered vitality and the effects of abnormal appetite and feeding; eyes rather prominent, but radiant showing expressions of alarming desires; respirations accelerated; contour of body from axilla to hips oblong, barrel shape; addomen, full and tense—drum-like; skin wrinkled and hanging in folds upon the extremities; legs like drum sticks; hands of the peculiar bird claw appearance; features sharp , the face having the hatchet sharp edged look; hollow temples, sunken fontanel; an erythematous rash over the body; thumbs flexed and held tightly in palms of hand; some opisthotonos; a very weak whining cry; bowels sometimes constipated, other times loose.

This is as near as I can describe the clinical symptoms of the case. I was informed that several physicians had seen this case and that various therapeutic agents had been prescribed. The father, being a registered pharmacist, and being well informed on the action of drugs, was able to recognize much of the plan of treatment which had been advised. The treatment advised by the former attendant having failed caused me some apprehension that possibly I might meet the same disappointment.

I diagnosed the case as one of malnutrition, or in other words, a case of gradual starvation; the patient dying for want of a food that its digestive apparatus could assimilate. I prescribed a food which has always given me excellent results. I did not give the patient much medicine. It was immediately placed upon whey prepared by the following plan:—One pint of fresh cow's milk is put into a clean saucepan and heated lukewarm, about 100 F., when two teaspoonfuls of Essence of Pepsine, Fairchild, are added, this is stirred just enough to mix; then allowed to stand until firmly jellied, then is beaten up with a fork; strained, and the liquid, whey, is ready for use. This food, thus prepared, should be kept in a clean bottle on ice.

The composition of whey, by analysis, prepared after this method, is as follows: protein, 0.8 per cent; carbohydrate, 4.8 percent; fat, 0.1 per cent; ash, 0.4 per cent. So that whey is readily seen to be by no means a very deficient food, but well adapted by its composition for a "rest food," and to replace whole milk and other foods in emergencies, and for a considerable time too when necessary.

Panopepton was given in the whey in fifteen drop doses every two hours for the first twenty-four hours, when the dose was slightly increased. The baby was fed approximately every two hours during the day, allowing from two to four ounces at each feeding; the child was fed slowly. As soon as it was thought practicable, the feedings were put further apart, allowing about two feedings during the night. The patient slept well, and was very little trouble after a few days of this treatment.

Small doses of calomel were occasionally administered, for its well-known cholagogue and antiseptic effect, as well as a glandular tonic.

The little patient did remarkably well with this method of feeding, and began a rapid convalescence, gaining strength and weight rapidly. The weight was gained as though by leaps and bounds, amounting to several ounces each day, until by the end of the fourth week, it had gone from 4 1-2pounds to 8 pounds, at which time a change of the feeding was directed. I then undertook the cautious use of a food prepared from whole milk and cream and water, and designed to afford an actual human milk, a bottle of the food of known composition of average breast milk; this was prepared by the following formula:—Freshmilk,3-4 teacupful; water, 2 cups; cream (top of milk), 2 ounces; Fairchild's Peptogenic Powder, 1 1-2 measure. This is heated to about lukewarm, and kept at this temperature for eight minutes, then quickly brought to boiling point in an open saucepan, then cooled for use. This follows up the whey with most excellent results; the feeding intervals were placed further apart as the child improved.

THE RELATION OF CONVULSIONS IN CHILDREN TO DIETARY ERRORS*

BY

JOHN B. JACKSON, M.D.

Kalamazoo, Mich.

It is a matter of common observation that a large percentage of convulsions in childhood are associated with some form of gastro-intestinal disturbance. It is also a matter of common observation that the human young is fed with less care than the young of any other animal. It is the purpose of this paper to discuss the relation existing between the convulsions of childhood and dietary errors and to suggest, if possible, how the physician may assume a more active part in this particular field of medicine.

Children are very much more frequently attacked by convulsions than are adults. With the exception of the first few weeks of life, when convulsions are rare,, except those caused by organic brain disease or trauma, the first two years are those during which convulsions are most frequent. With the beginning of the third year the tendency grows less and at the age of three the tendency is no longer marked. The explanation of this tendency has long been sought. The discussion of the various theories that have been offered will not be taken up. We may make the general statement that the nervous organization of the child is not stable. The brain grows and develops rapidly. The peripheral nerves develop rapidly and the powers of inhibition are weak. As the child grows older the nervous system is more developed and the powers of volition and of inhibition are brought into use. At the same time the tendency to convulsions becomes much less marked.

° Read at the Forty-Seventh Annual Meeting of the Michigan State Medical Society, Muskegon, July 11-11, 1912; *Journal Michigan State Medical Society, November*, 1912.

There are several types of convulsions that occur in early childhood. The ordinary type and the one which most concerns us in this discussion is that of simple clonic convulsions There may or may not be prodromal signs. Frequently there is a premonitory pallor and an expressionless cast to the countenance with some rolling of the eyes. This is quickly followed by clonic movements of the extremities. The muscles of the face are involved often. The head is usually pulled backward. The diaphragm is also often involved and respiration is irregular or completely arrested. Consciousness is always lost. The attack may be of only a few seconds duration, or may last for an hour or more. This is the ordinary type of convulsions that occurs.

Another form is the so-called tetany of children. This is a tonic spasm usually involving the upper extremities. The hand and forearm are held in flexion. The lower extremities are sometimes involved. There is no loss of consciousness. The convulsions may last for several hours or even days. Spams ofthe larynx is another form of convulsions which is not infrequent in childhood. This condition is frequently associated with tetany.

While it is not our purpose to enter into a discussion of the various classifications offered for the convulsions of childhood, one can scarcely consider the various forms without some mention of the socalled sepasmophiliaor spasmophilic diathesis. German pediatrists differentiate between occasional or accidental convulsions which occur in childhood and those which occur in children who have a marked tendency to such seizures. Certain children or families of children seem to be born with an oversensitive nervous organization which causes them to have convulsions on slight provocation. This hyperirritability of the nervous system is called spasmophilia. The general clonic convulsions occurring in such children are referred to as infantile eclampsia. These seizures are almost always accompanied or preceded by laryngeal spasm. Consciousness is always lost. Infantile eclampsia, tetany and laryngospasm are classified in the spasmophilic group.

Spasmophilia presents latent symptoms which may be elicited between the attacks. Among these may be mentioned increased irritability to the galvanic current, Chvostek's facial phenomenon and Trousseau's sign. Chvostek' sign depends on the increased mechanical irritability of the nerves. When the facial nerve is tapped or stroked on the cheek there follows a general contraction in the region supplied by the nerve. Trousseau's sign depends on a like increased irritability. When pressure is made by constriction of the arm near the axilla it brings on a convulsion like that of tetany.

Another form of convulsions that may occur during early childhood is epilepsy. One may hesitate to place epilepsy among the other forms of infantile convulsions, because of the difficulty of differentiating epilepsy from the attacks of simple clonic convulsions, or of the so-called infantile eclampsia. However, most authorities agree that epilepsy in early childhood is a disease entity and as such should be diferentiated from other forms of convulsions.

While we have not attempted to classify or to carefully describe infantile convulsions the foregoing will suffice, for the purpose of this paper, as a review of the more important types.

In order to discuss the relation of dietary errors it will be necessary to review briefly the various etiological factors that have to do with these convulsions.

Organic disease of the brain or spinal cord may produce convulsions in infants as in adults. Uremia and other intoxications resulting from organic disease of the various viscera may be the cause of convulsions. Certain toxic drugs are capable of producing such disturbances. Acute infections like pneumonia or the various exanthemata sometimes have convulsions among the early symptoms. Recently a case of repeated convulsions in a child 8 months of age for four days preceding an eruption of measles came under my observation. A frequent source is th acute indigestion that follows errors in diet. A child is given food that is indigestible and there follows a general disturbance of the gastro-intestinal tract, and convulsions appear. One of the most severe attacks of convulsions that I ever observed in a child occurred in the case of a 2-year old who had eaten freely of unripe apples. The chronic intestinal indigestion of childhood is perhaps the most frequent cause of convulsions. These cases are exceedingly numerous among the children of all classes of society. Their bodies are being constantly poisoned by the toxins arising from the fermentation and decomposition of food within the intestinal tract, and the nervous system is in a constant state of hyperirritability. Rickets is a disease which frequently is associated with some form of convulsions. The so-called spasmophilic diathesis is very closely related to this disease. By some writers rachitis is considered theunderlying cause of all convulsions of the spasmophilic group. Constipation is frequently the cause of convulsions in children. Reflex irritation such as a tight foreskin, or a foreign body in the external auditory canal may be the immediate cause of these disturbances. In a consideration of this sort one should make mention of family tendencies. Certain families seem to be born into this world with a predisposition towards infantile convulsions. One frequently sees several children of the same family who have convulsions during the first two or three years of life. In many cases a history of convulsions during infancy may be elicited in the father or the mother. Other etiologic factorsmight be discussed ,but there is not time for this consideration in this paper.

A consideration of the foregoing causes will show that the most important factor in the etiology of infantile convulsions is the food that the young child eats.

Organic diseases of the brain or spinal cord may be said to be independent of diet, and yet we may mention that one very frequent cause of such disease, the tubercle bacillus is most frequently introduced through infected milk.

Acute infections like pneumonia or the exanthemata may produce convulsions in a child previously in perfect health. Yet I believe many have observed that these diseases produce convulsions in otherwise healthy children much less frequently than in those who are suffering from improper feeding. Children with hyperirritable nervous make-up are much more likely to have convulsions with these diseases than those who are normal in this respect. I recently observed a 16-months-old child with pneumonia who had three or four convulsions at the beginning of the attack. Colonic irrigations revealed a considerable aqu lacy of undigested baked beans. It is fair to suppose that iidhtnt whose colon is filled with such unsuitable material is more likely to have convulsions at the beginning of an attack of pneumonia than one who has been fed more reasonably. Recently the two children of a family came down with measles.

These children have always been improperly fed. Both had had several convulsive seizures. Preceding the eruption of measles both had convulsions. It is fair to suppose that these children who had already had the convulsion habit formed were much more likely to manifest such symptoms at the time of an attack of measles than children with better feeding and a more normal nervous system.

Of the acute indigestions of early childhood we need to say little. These are manifestly due to a great extent to the faulty feeding. In the case of infants the milk is frequently not properly modified, or contains bacterial toxins or pathogenic bacteria. In older children the cause of acute indigestion is frequently food that is entirely unfit for children to eat.

Chronic intestinal indigestion in children is, I believe, the one most important condition which is associated with convulsions. That improper feeding is the starting point of a very large percentage of these cases there can be little doubt. In this connection, it may be well to point out the often observed relation between chronic indigestion with its attendant nervous phenomena and epilepsy of later childhood. So far as I am able to learn the exact cause of epilepsy is not known. We are told to differentiate in early childhood between simple convulsions and true epilepsy. About the only way that this may be done is to follow the expectant plan of diagnosis. If the child develops into an epileptic the convulsions were epilepsy. If he does not, the convulsions were not epilepsy. Whatever may be the element of truth in this bit of levity, it is a fact that many of these children with chronic gastro-intestinal disease who have convulsions, continue their habit of having fits until they become true epileptics.

Concerning the relation of rickets to improper feeding there is little to say. We shall not enter into a discussion of the old question of the etiology of rickets. It is enough to point out a few pertinent facts. Rickets is much more frequent in the bottle-fed than in the breast-fed. It is much more common among the poor than among the well-to-do. It frequently has gastro-intestinal disturbance among its symptoms. It would seem that if we always knew what to feed our children, there would be very few cases of rickets.

Constipation which we have mentioned as a source of convulsions may often, and always best be relieved by proper diet.

In regard to family tendencies to infantile convulsions it has been my observation that family tendencies to improper feeding are often coincident with the tendencies to convulsions. While no one would attempt to say that such unstable nervous organizations are not often matters of heredity, it is none the less true that many families owe the hyperirritability of the nervous system to causes quite remote from heredity.

It may be of value to discuss some of the more common and easily detected errors in diet which have to do with the nervous disturbances under discussion. Among infants of the first nine months there are five things which we will discuss: weaning from the breast without sufficient reason, overfeeding, irregular feeding, an excess of carbohydrates and an excess of fats.

The greatest calamity which may befall a young baby is to be deprived of the privilege of nursing at the mother's breast. This statement needs no proving and yet physicians frequently advise weaning for reasons which are altogether insufficient. A great many children are weaned because they are fretful the first two or three weeks. Others are weaned because the mother's milk is insufficient. Many children may be put temporarily on mixed feeding rather than weaned altogether. If the seriousness of depriving the baby of mother's milk were always borne in mind a great many convulsions would be prevented.

Overfeeding is probably the most frequent error made in bottle feeding the baby. This and irregularity in feeding go together. It is not to be wondered at that children who suffer from such mistakes come to have chronic disturbances of the gastro-intestinal tract and become subject to convulsive seizures.

Overfeeding of carbohydrates by parents and physicians is due to a great extent to the large number of proprietary foods on the market which are advertised as superior to cow's milk. One frequently hears mothers remark that they never could find anything to agree with their babies until finally they tried cow's milk.

Feeding with too much fat, is I believe, the error that is most frequently made by physicians prescribing milk modification for babies. In my somewhat limited experience in artificial feeding of infants I have become firmly convined that there is very seldom a need for feeding babies with cream mixtures or top milk mixtures. However this may be, many babies often are brought to grief on too much fat.

Among older children after the first nine months and before the period of the more varied diet of the third year there are certain common errors of which we may speak. First may be mentioned the error of feeding children for too long a time on a too exclusively milk diet. Children who are fed too large quantities of milk do not do well. There are very few cases in which children may be fed more than a quart of milk a day for more than a few weeks and be free from disturbances of nutrition. On the other hand, children are frequently fed too little milk.

A second error is that of an excess of carbohydrates. Among the poorer classes a great many children are fed large quantities of bread and potatoes. This error is frequently followed by rickets and it's attendant disturbances of the nervous system.

Another common error during this second feeding period is the feeding of too much highly proteid material such as meat and eggs. This always leads to chronic intestinal disturbances and very frequently to convulsions.

We have tried to indicate the relation that exists between dietary errors in children and convulsions. The object in so doing is not to expound any new theory. A great many convulsions are not due to such mistakes, but it is safe to say that 90 per cent. of them may be directly or indirectly traced to such errors. Our object is to point out the physician's responsibility when called to such cases. It is not enough to relieve the child for the time being. An effort should be made to find out the underlying cause and to endeavor to so instruct the parents in the matter of feeding that the child may not continue to have such seizures, and possibly later become an epileptic or neurotic adult.

SOCIETY TRANSACTIONS.

MEDICAL SOCIETY OF THE STATE OF PENNSYLVANIA—SIXTY-SECOND ANNUAL MEETING, SEPTEMBER 24th to 26th, 1912.

Medical Inspection of Schools in the Fourth Class Districts in Pennsylvania.

Dr. Samuel G. Dixon, Harrisburg:

It was not until 1911 that the State passed a law to promote the medical examination of school children. In this law, which is in the main good, there are two provisions that seriously cripple its action in districts comprising nearly three-quarters of the whole number of children. These are in districts of the third class it is at the option of the directors whether in any particular year they shall have medical inspection or not; and that in districts of the fourth class, they may dispense with inspection entirely by vote. Through this defect in the law, over six thousand children were left to go without the medical care given in other counties, although about the same number did reap the benefit of medical examination. One hundred and five thousand were found to have one or more defects, and the returns of the teachers indicate that thousands of children were distinctly benifited by the inspection made last year.

Discussing Dr. Dixon's Paper.

Dr. Walter S. Cornell, Philadelphia:

The medical inspection of schools in the fourth-class districts is something of which I do not have first-hand knowledge. The work in which I am engaged is in Philadelphia, which is a first class city in size, as in everything else. There are things in this district that do not occur in others, and some men who are practising physicians do not know the difference between the various classes. The school districts are numbered in the same way as the size of the cities, the districts of the first class corresponding to Pittsburgh and Philadelphia. I am not sure of the limitation between second and third classes, but fourth class includes the rural districts. In the cities of the first class, we find absolute medical inspection. Pennsylvania is away ahead of any State of the Union at the present-time in regard to medical inspection, in spite of the defects in the law. If you look at the Report of the Russell Sage Foundation of three years ago, you will find that it has come into existence in municipalities by means of local effort; and that while there are now two or three hundred cities that have medical inspection, three years ago there were no States in which they had it except Massachusetts and Vermont. In the latter State, the medical men look at the children sent to them by the teachers, but do not make first-hand examinations. New Jersey was the first State to pass a law requiring medical inspection, but no penalty was attached to its violation. A good many of the rural districts in that State, therefore, have not fallen into line; but even that law has had a wonderful effect, and medical inspection in New Jersey has become quite the rule. In Pennsylvania, as Dr. Dixon says, the commission of education worked hard and faithfully to produce the new school code of Pennsylvania; yet it contains certain things, the result of the pressure brought to bear on the commission, that were compromises made necessary in order to get the school code through the legislature at all and overcome opposition to it in certain quarters. I hope, now, that the weak spots in it will be corrected. The first point that we should remember is that medical inspection goes just as far as its endorsement by the medical profession takes it. It is endorsed by women's associations of various sorts, but not by the doctors. You can go far before you find a medical society that stands out and definitely pushes the subject of medical inspection. The reason is not far to seek. The point that Dr. Dixon made about the absence of monetary inducement explains it. You can always be sure that when money is to be gained, there is always an agent there; but when it is a question of philanthropy, it goes by fits and starts. We must depend on the various local health departments to professionally supervise the work; but we must back these organizations up, so that it cannot be said that they are doing it for their private good. The difficulties that have arisen around medical inspection are due to the creation of the medical system of practice under which we live. If you have good inspection, the men must be there regularly and make the examinations in such a way as to discover the defective children; but medical men have been trained to a profession, rather than to business. Since my incumbency, I have seen plainly that it is necessary for me to talk to the medical inspectors and show them that when they draw a salary, they are in a position that they have not before occupied. They seem to expect to get the salary and not have to give the regular service. In professional service, the man takes a fee and performs occasional services; but in occupying a position, the work is regular. The medical colleges have not trained men in the study of the specialties in relation to internal medicine. When it comes to the relation of general medicine to the specialties, there is hardly any disease in which you do not find yourself touching upon something that, by our present system is referred to a specialist; yet every general practitioner should have a knowledge of the eye, for example, sufficient to enable him to take a card and test the child's vision, one eye at a time. He should know that when a child has internal squint, it is probably due to hyperopia. He should know that the first molar comes at the age of six years, and is the most important tooth in the mouth. These things are not taught in the medical schools; and in order to get these facts, the men have to buy large books on the different specialties and read them. The men that we get as medical inspectors do not know them.

Dr. E. W. Tool, Freeburg, Snyder Co.:

I have been appointed for a fourth-class district in Snyder County. I am much pleased with Dr. Dixon's paper, and should like to ask him for some information. The district that I am to represent contains about five or six pupils in each schoolhouse at the present time, but by about November there will be twenty-five to thirty in each. I should like to know whether we should have good inspection by starting now, or by waiting until November. I live in a district where there are eleven schools, supposed to be one of the highest grades of schools in the county. It is the district that Dr. Dixon has mentioned, in which the directors refused to ask for medical inspection, because they thought it was not necessary. They were afraid of the expense, if they asked for examinations; yet the four districts of this county should be cared for, as well as the city districts.

Dr. Thomson, Scranton:

I should also like to ask Dr. Dixon something. He tells us that he finds six thousand children to whom the school directors have denied examination. I have had the privilege of talking to some rural physicians who had been asked by the directors to make the examinations, and who had declined to make them because they were offered less than ten cents apiece for examining the children. I should like to ask whether that is not the real reason why these children have not been examined in many cases. I know that this does prevail in this district, that the country practitioners have declined to examine the children at seven cents apiece, which is the amount that they were told the State Board of Health would be able to pay for it. Regarding the city practitioners, we find that they are in such straitened circumstances that they are willing to examine the children at any price, in order to get a few dollars.

Dr. Cornell, of Philadelphia, has bought out a very important point.

He tells us that our general practitioners are not competent to make the examinations, that they must ask for special training, and advises that our medical colleges get busy and give our new physicians, our younger men, this special training. I should like to ask again whether, after a man has acquired this training to fit him for this work, there is a possibility of the price's being raised about ten cents apiece for the examinations.

Dr. Dixon, closing:

With regard to the time of commencing the examinations, I would say that, taking into consideration our experience last year regarding the geographical conditions, including the weather, throughout the State, it is essential to begin early; because of the impassability of the roads, and because of the small pay that the physicians get when the schools are far apart. Last year, it became impossible for us to pay the inspectors enough to travel long distances in order to examine the children.

With regard to the question about the six thousand and odd children that are not being examined, I would state that the pay had nothing to do with the matter; because the directors passed the resolution under the new law of the State before the organization was formed, and before any physician knew what he would get.

As to the pay, you people, of course, are looking for pay and would like to know the amount of the exchequer of the State, so far as the Department of Health is concerned. When I was Chairman of the Committee of Hygiene in the Educational Board in Philadelphia, we started our attempt to get medical inspection; and there were found physicians willing to do the work for nothing for a time, in order to demonstrate to the people of Philadelphia that it was essential. They worked on this basis for two years. After we had demonstrated the need for medical inspection, Councils made an appropriation for the work. Last year, we took the little money that we found to test out. Last year, it came under the general appropriation, and for school inspection there was no special appropriation. Therefore, in the early part of the year, it was hard for us to tell what demands were going to be made on the general appropriation. You cannot tell how often your patients will be sick, and I cannot make any better calculation regarding the expenditures that will have to be made. As the money for medical inspection was taken out of the general appropriation for the Health Department, this might have brought us up against a deficiency. I felt that it was optional with the physicians whether they accepted the position of medical inspector or not, but we offered them everything that we had. This year our appropriation has to go until June first. We do not know what epidemics are going to break out, and cannot make a calculation as to how far the money will go. We took out of that general fund as much as we believed it safe to pay for this coming examination; and at our next session of the Legislature, we hope to urge an appropriation for this special purpose. You must appreciate the fact that this lack of money was up to yourselves or the people of the State, in not influencing the Senators and Representatives to make an appropriation. I cannot do it. We did the best we could, in taking money for this work out of our general appropriation; and we found many men willing and anxious to do excellent work. I think that with your exertions and those of the medical profession throughout the State, a proper appropriation can be made at the next session. So, you see no criticism can be made of my Department. I do not think that any criticism is just; for we could have lain down and done nothing as we had no money to do anything with.

Etiology of Phlyctenular conjunctivitis and Suggested Treatment.—Dr. Howard F. Pyfer, Norristown: This condition is found most frequently in hospital and dispensary work; although isolated cases of it are sometimes encountered in private practice. The child does not always present an improverished condition, and the tuberculin test is not conclusive. Error in diet play an important role in the causation, and a large percentage of the patients are anemic. Lymphatic stasis is invariably found. The treatment consists in fresh air, regulation of the diet, syrupus ferri iodidi, removal of adenoids, and dilatation of the nasal fossa.

Discussing Dr. Pyfer's Paper.

Dr. Luther C. Peter, Philadelphia:

For the most part, I can heartily endorse the findings of Dr. Pyfer on the etiology, course, and treatment of phylctenulosis. The broad, general, underlying cause, I think we will all agree, is lowered vitality—not necessarily mal-nutrition. When submitted to a careful physical examination, none of these patients, young or old, are in a normal condition. They all give evidence of lowered vitality.

In my experience, we can divide all cases of phlyctenular disease into two classes, namely, first those in whose bodies tuberculosis can be clearly demonstrated; and, second, a small group composed of those in whom tuberculosis has not been shown by a clinical or laboratory test. There can be no doubt in the minds of any of us that bad surroundings, improper food, adenoids, and the acute exanthemata are large contributing factors in the etiology of this common disease of childhood; but as to the part played by tuberculosis, we are not entirely in accord. The speaker believes with Dr. Pyfer that tuberculosis is a larger etiologic factor than is now generally conceded.

The compilation and study of statistics in large numbers has the disadvantage of inaccuracy and lack of care in the study of each individual case. Exhaustive physical examinations by competent internists are not always made, and a diagnosis of tuberculosis is often allowed to hinge on the positive or negative character of the Von Pirquet or Calmette test with tuberculin. I am a strong advocate of tuberculin in diagnosis and treatment; but in scientific research I do not believe that we have exhausted our investigations until, by repeated subcutaneous injections of tuberculin, we have confirmed or denied the accuracy of the Von Pirquet test, if it is employed. Von Pirquet has given us an instructive resume of the value of his test in his study of two hundred children whose cases came to autopsy; but for scientific conclusions, I believe that the subcutaneous use of tuberculin should be added to check up inaccurate results.

Furthermore, notwithstanding the value of tuberculin as a diagnostic agent, when used by Von Pirquet's method or subcutaneously, a careful and exhaustive physical examination, made by a skilled internist, should be the *sin qua non* in the study of these cases, in order to arrive at scientific conclusions. Twenty cases studied with this care will give us more dependable data than the statistics of five hundred cases studied indifferently. The improved laboratory tests of the day have caused us, in a measure, to neglect our older methods of diagnosis. The function of the laboratory test should be the confirmation of the clinical diagnosis, rather than the court of final appeal, with insufficient corroborative evidence.

The eruptive diseases of childhood, I believe, rarely in themselves produce phlyctenulosis, but operate by acutely lighting up old or latent fires of tuberculosis; just as adenoids, poor food, and bad surroundings slowly prepare the soil that eventually results in tuberculosis. I do not bring before you large columns of statistics to substantiate these assertions, but they are the convictions of eighteen years of observation in general and opthalmic practice. Those of you who have spent much time around the postmortem table and have witnessed the many healed and quiescent foci of tuberculosis that apparently escaped detection during life, must be convinced that we have not as yet reached that stage of perfection in diagnosis where we can always say that tuberculosis does or does not exist in a given patient. The most that we can say is that we have failed to detect it. However, there undoubtedly are instances of phlyctenulosis in which tuberculosis apparently does not play a part —a small group that can be clearly separated and treated accordingly. They are the hopeful cases.

There can be little question as to the constitutional origin of phlyctenules. It matters little what local treatment is used, so long as proper measures are taken to improve the general health. In fact, a simple boric-acid wash or the yellow oxide of mercury ointment accomplishes as much as any local measure that I have tried.

As to the general measures that Dr. Pyfer has suggested, I can heartily agree with him. We cannot emphasize too much the importance of the breathing spaces,—the removal of the adenoids and offending tonsils, and the widening of the nasal chambers. Most of our cases will recover from the attack with these general measures. Will they remain well? What is the significance of these recurrences? My own feeling has been that tuberculin should be used in every case that will give a positive reaction to the subcutaneous injection of tuberculin; and also in other intractable cases in which a reaction has not been positive, if clinical evidence seems to point to the presence of tuberculosis. We cannot lose sight of the possibility that the presence of phlyctenules indicate a state of anaphylaxis (therefore, the negative reaction) or an advanced state of tuberculosis.

Just a word as to the serious character of the disease and the necessity for prompt and energetic treatment:—So frequently do we see this condition in children that some are apt to minimize the dangers. Aside from allowing the general disease to go untreated, and thus allowing the patient to become a menace to others in the community, relapses are bound to bring about limitations of vision and (for all practical purposes) blindness, in not a few instances. It therefore becomes an economic problem of great importance, and should command our broadest and most unbiased interest in prescribing the most satisfactory line of treatment.

Dr. Lewis H. Taylor, Wilkes-Barre:

The hour is too late for me to discuss the paper. I am only sorry that Dr. Pyfer did not have a full audience and the whole session, because it is a very important communication and is worthy of a full discussion. As it is, I shall take only a minute or two.

I agree with the most of what he has said. I have treated many cases of this sort, and have had many good results; but many cases have lingered a long while before being finally cured. I have never used tuberculin; nor do I believe that all these cases are, as Dr. Pyfer intimates, manifestations of tuberculosis. I believe that many of them may be so, however; and I believe that all these cases are a manifestation of some systemic disturbance, and that a good point in the treatment depends on getting the digestive tract into proper condition and avoiding such food (candies, sweets, etc.) as will create a disturbance in the direction. I always believe in treating these patients in a general way, and I think that one of the best remedies is syrup of the iodide of iron. The local treatment should be continued and should be varied from time to time, according to circumstances. I have seen cases, as you all have, that are apparently hopelessly blind. That is, they are brought to you by the parents, who say that their children are blind. The little patient sees almost nothing, the condition is so bad, yet it is surprising how these cases do clear up under appropriate care and treatment.

Dr. C. M. Harris, Johnstown:

After describing a case to Dr. Pyfer this morning, and he asked me to report it to you, so that it might be included in the discussion of his paper. It seems to be the assumption of some observers that what we know as episcleritis is a pronounced form of phylctenulæ. The case that I described to Dr. Pyfer was as follows:

A young woman of eighteen came to me with what I regarded as typical manifestations of episcleritis. There was a bluish patch of it with a good deal of injection overlying it. By means of atropin heat and other local measures, and iodides and salicylates internally, it subsided in three weeks. In nine months, she came back with a similar patch adjacent to the former one, but more pronounced in type. In the center of this infiltration was a smaller yellowish patch, probably three millimeters by two. By pressing, a slight fluctuation would be seen. The eye was cleansed thoroughly, the purulent area opened, a smear taken, and the cavity mopped out with tincture of iodine. It healed in at that point, but the condition recurred a short distance away. It progressed around the cornea for probably one-quarter of its circumference. Iodine did not act so well later, and I tried galvano-caut rization. It did little good. I used all the measures that I had employed before, without avail. The bacterilogist found some attenuated tubercle bacilli in this pus. The girl refused to have tuberculin used. The Von Pirquet test was positive, and the local symptoms cleared up markedly a few days after the test.

Dr. Nelson S. Weimberger, Sayre:

I should like to ask Dr. Pyfer whether he meant to convey the impression that he makes no diagnosis of phlyctenular tuberculosis unless he gets a positive reaction. In Wills Eye Hospital, we tested in both children and adults, and failed to get a reaction both by the Von Pirquet method and by subcutaneous injection. As we got no reaction with tuberculin, we did not consider the condition tuberculous; and yet I fully agree with Dr. Pyfer that there is some latent tubercular general condition that accounts for these cases.

Dr. G. Edgar Dean, Scranton:

There are possibly about three points that were not well brought out in this splendid paper.

One point is that, as Dr. Konigshofer, of Stuttgart, points out, there is a possibility that these cases are some phlyctenular, and some herpetic, in character. Those due to nasal pressure for instance are liable to be herpetic. He said that he could detect the difference by taking a probe and touching the ulcer itself. If herpetic, it would not be sensitive; but if it were truly phlyctenular, it would be very sensitive.

I had a case in which I have just prescribed glasses, which may be interesting to the gentlemen. It was one of the most intractable cases that I have ever treated; and I ran the gamut, about, of those remedies that have been mentioned. I am sure that I gave syrup of the iodide of iron, as Dr. Taylor advocates; and yet the case hung on my hands. At last, in sheer desperation, supposing that it might be corrected by what I suppose a great many of the true phlyctenular cases are due to a diminution in the size of the absorbent vessels, I gave this child, not cod-liver oil, but one its extractives. The patient got well like magic and, to the best of my knowledge, has remained well even since. This was seven years ago. I have just prescribed glasses to this patient for mixed astygmatism with a hyperphoria. This child, if she was tubercular, has remained well thus far, for seven years since the treatment. It is an exaggerated case but even the ordinary cases will usually be found to have some arror of refraction.

One thing that has not been brought out in the treatment is that in properly selected cases a local treatment of toluidin blue is valuable, as was brought to my attention by Dr. Taylor some years ago—1: 1000. It is somewhat difficult to procure.

Dr. John B. Turner, Philadelphia:

We all have our ideas on the subject; and I believe that a great many cases are not tubercular, but are due to a run-down system. So we patients, too, inherit syphilis, which depresses the system. I have a treatment that has given me a good deal of satisfaction. In a case of phlyctenular trouble, I use a one per cent. holocain solution, and wait five minutes; and use yellow oxide ointment, which is not then washed out by the tears. It does good. Of course, in a case in which I suspect inherited syphilis, I give bichloride of mercury. There was a girl of eighteen years of age, who had been to several clinics. She was at work in a month. By that treatment, simple as it is, we usually get along; but I have seen cases in which, if they had adenoids, the cure would not be permanent until these were removed. They seem to stop the lymphatic circulation.

Dr. Reber:

In regard to immunity, I can still make the assertion that in my own belief every child must establish its own immunity to tuberculosis; but, as some children will do so in the first year of life, and some perhaps not until the twentieth year, the institution of tests with tuberculin in a series of children near any certain age is going to be, in a certain sense, misleading, even though largely true. The term used by the essayist, toxic tuberculoid is beautiful; for I believe that its use would allow us all to come together, no matter what ever else we might hold, if we accepted that statement. I believe the question of its tuberculous nature should be investigated in every case of phlyctenulosis, and I believe that many of you would admit that not all are of toxic origin; but you will admit that they are combined in some degree in every case, sometimes the toxic, and sometimes the tuberculous element predominating. I believe that very few cases would escape the classification of a toxic tuberculoid. My custom is that each of these children shall be remanded to a careful pediatrist's care. Simply to clean out the digestive tract is helpful; but unless the case is followed up, the condition will return. The Calmette test in these cases is dangerous. In the early days of this test, I produced a violent inflammation with interstitial keratitis in both eyes of a child eight years of age; and it required the best part of a year to quiet it. I, therefore, agree with those who hold that a subcutaneous test is the best.

The syrup of the iodide of iron should be begun in small doses, and gradually raised to sixty, seventy, eighty, or ninety drops a day, or even, as was done in one of my cases, fifty drops three times a day. It is of extreme value. Calomel has been used for years; and I have nearly always followed the custom spoken of by Dr. Turner, of using holocain to 9 met. the 5th nerve in the conjunctiva and thus keep the medicine from being wasted away.

Dr. Pyfer, closing:

When I wrote my abstract of the paper, I believed with most of my colleagues that this condition might possibly be tuberculous in some cases, so you see that the abstract is somewhat different from the paper. When I gave up my position and spent a good deal of time in a library, I saw the vast amount of literature that there was on the subject, translated from various languages; and I was overwhelmed with the evidence that tuberculosis almost always plays a part in the causation of the disease. If Dr. Pyfer, instead of reading my paper, will take up the papers of more learned men who are associated in large hospitals with Roentgen-ray experts and internists, and see the results that they have found, he will be more convinced than I am; and if a paper by him should follow mine, I think that his would show him to be stronger in this belief than I am. Those cases that I quited, fearing the gavel of the Chairman all the time, were a few of those of eight hundred and fifty to nine hundred patients, whom these authors have carefully followed. I am not a trained man like the Germans; but they have gone into the subject thoroughly, and so have the French. All that I can do is to refer him to the literature, and he will take back three-fourths of what he has said.

As to giving iodide of iron, I cannot understand why it would not be better to give hydriotic acid. Why should one use a lot of iron, which is not assimilated, and merely colors the stool of the child? It is the iodide that does the good.

As to the ulcer, any ulcer will involve the lymphatics and produce phlyctenulitis.

Trachoma in its Relation to Blindness. Dr. Clarence P. Franklin, Philadelphia: Although trachoma is an alien disease, there is a sufficient amount of it in the United States to present a problem that slight neglect might increase to troublesome proportions. At our ports, persons with this disease are stopped and sent back to the countries from which they come, but some cases escape detection. The American Association for the Conservaton of Vision has recognized trachoma as one of the causes of blindness. This Association was organized under the direction and with the moral and material aid of the Russell Sage Foundation. State laws governing trachoma are quite inadequate and the work must be done by private endeavor. At present, in the list of causes of blindness, trachoma holds a place that should be vacated. Blindness from trachoma in the United States is a reproach.

On the Sociologic Aspect of Errors of Refraction.—Dr. William Zentmayer, Philadelphia: As affections of the eyes that may lead to incurable blindness may have their origin in or be activated by errors of refraction, such errors, when producing symptoms, should at once be corrected. It would aid in the efficiency of labor and prove an economic saving for corporations and others with large office forces to require of applicants for employment an examination by a competent ophthalmologist and where errors of refraction are present, to insist upon their correction. The examination of the eyes of school children should be compulsory by State law, such examinations should be made in a thorough manner by a competent ophthalmologist. As it seems possible that certain types of epilepsy may have an ocular origin, this question should be made the subject of careful institutional study. In consequence of the adoption of workingmen's compensation laws in many States, it is of the utmost importance for employers to have the eyes of their employes and applicants for positions examined by a competent ophthalmologist, and have errors of refraction corrected. A campaign of public education as to the danger of intrusting the examination and treatment of the eyes to those whose only qualification is their assurance and whose only only aim is the successful accomplishment of a business transaction should be undertaken. This should be done through the columns of such papers as hold the public good above commercialism.

Ophthalmia Neonatorum and its Relation to Blindness. Dr. Edward B. Heckel, Pittsburgh: The enumerators in the Census of 1900 report a total of 101,123 persons alleged to be blind. This number was subsequently greatly reduced by correspondence: 8,842 of those alleged to be blind reported that the alleged defect did not exist, and 6,544 reported that they were blind in one eye only and had normal vision in the other; 19,884 failed to make any reply, leaving a total of 35,925 to be eliminated. Therefore, there remained for statistical purposes 64,763, of which 35,645 weer totally blind, and 29,118 partially blind. Perhaps the 19,884 persons who did not reply should be included in the grand total.

As to ophthalmia neonatorum as a causal factor, the Census of 1900 states: "Exclusive of congenital defects and injuries, accidents and operations, there were 2,556 who lost their sight after birth, but under one year of age; and in 644, or 25.2 per cent. of these cases (i. e., of the 2,556), the cause of blindness was probably ophthalmia neonatorum." In other words, the 644 who probably became blind as the result of ophthalmia neonatorum represent less than one per cent. of the grand total of 64,763, or less than two per cent. of the 35,645 who were totally blind. Therefore, the statement that twenty-five to forty per cent. of all cases of blindness are due to this disease is an error.

The value of proper prophylaxis is beautifully shown by the statistics furnished by a committee of the American Medical Association of which Dr. Lewis, our guest, was Chairman. Out of 12,298 births, there were 346 cases of ophthalmia neonatorum, or less than three per ecnt. It has clearly been shown that the instillation of one per cent., or even two per cent., nitrate of silver never results in any harm; and if so, might we not use it as a routine in all of the new-born? However small the percentage of cases may be, so long as any exist, it is our duty to fight this disease.

Conservation of Vision. Dr. Edward Iterein, Pittsburgh: Regarding blindness from ophthalmia neonatorum, I feel that a certain proportion these cases are due to bad handling of the patients, rather than to the gonococcus. I have seen cases in which a simple inflammation of the lids excited the fear of the physician, and in which the over-use of nitrate of silver resulted in destruction of the cornea. Solutions stronger than two per cent. should never be dropped into the eyes but merely applied to the everted lids, and the surplus mopped off.

Dr. Zentmayer's paper is very valuable, to my mind. I am thoroughly convinced that a large proportion of mentally and morally deficient persons have a large percentage of errors of refraction. In examining juvenile court cases, during the past year I found that ninety-three percent. had errors in refraction. Perhaps you have seen Case's article in the "Ophthalmic Record," 1906, on "Eye Strain and Crime," in the Elmira Reformatory he found that thirty-six and a half per cent. had errors of refraction. Writing to different institutions in the United States, he found that thirty-eight per cent. of the inmates showed a lowered standard of vision. There is no doubt in my mind that many cases are benefited by the wearing of glasses. Case's investigations showed that the wearing of glasses resulted in added efficiency and better conduct all through. With regard to our studies in Pittsburgh, it is too early to formulate results; but I am quite sure that they will be followed by beneficial results. Case makes the strong statement that improving vision and relieving eye strain among the prisoners was followed not only by better work in the school rooms and workshops, but also that the general demeanor of the men and boys was noticeably improved.

Dr. C. M. Harris, Johnstown:

I should like to add a word about trachoma. I believe that it is on the increase in our community, because we have so many foreigners; so that it propagates more freely than it would with the better class of natives. While I have no statistics, I believe that it is much on the increase. I find that a boarder in a certain house will come to me with trachoma. He comes once-only once, because I do not perform miracles. In a month or two, along comes some other member of the boardinghouse—or, as happened recently, the boarding mistress, a foreign woman. Every once in a while, however, I see a native American with this disease. There is sometimes no explanation of where the contagion comes from—probably from money or from contact with some object that these people have touched. Therefore, I am impressed with the idea that it is going to be much more prevalent than it has been or is now, largely on account of the careless way in which the disease is handled and the way in which these people handle themselves. I do not know how one could confine them long enough to eradicate it. They have not the intelligence to take care of themselves after they are discharged. I have recently been treating a boy eight or ten years of age. It was not a glaring case, but the disease refused to be subduced by ordinary remedies. His father had had some eye disease in youth; and I looked at his lids, and found the typical cicatricial stage of trachoma. I suppose that the boy contracted it from his father, even though the disease in the father is quiescent or cured, as he says. Therefore, we had better be suspicious of trachoma in all its stages, if it is contagious under these conditions.

Dr. C. M. Harris, Johnstown:

We have a fresh crop of foreigners in Johnstown every year, from Southeastern Europe, and I feel convinced that some must have trachoma in an incipient stage. That accounts for the increase of trachoma there. These foreigners do not stay in Philadelphia.

Dr. William Zentmayer, Philadelphia, closing:

With regard to trachoma, I was surprised to hear from several of the speakers that it seems to be on the increase in this State. It is their impression that it is becoming more prevalent. Now statistics made at the Wills Eye Hospital by my assistant, Dr. Dewey, show that this is not the case in Philadelphia. In the fifteen years covered by these statistics, the percentage of trachoma in the reports had fallen from 9. per cent. to .9 per cent. That shows that it is such less common than it was formerly in Philadelphia. Then I am sure that we have noticed the scarcity of the necessity for plastic operations to cure defects caused by trachoma. We do not now do those tha were common fifteen years ago at the Wills Eye Hospital. I believe that it is an error to exaggerate the importance of trachoma in the State.

RETROSPECT OF CURRENT PEDIATRIC LITERATURE

Diseases of the Alimentary System

Under the Charge of

JAMES WARREN VAN DERSLICE, M. D.

Assistant Professor of Pediatrics, Rush Medical College, Chicago, Ill.

Antienteric Vaccination.—By Reynold Webb Wilcox, M.D., LL.D—Amer. Practitioner. Professor of Medicine (Retired) at the New York Post-Graduate Medical School and Hospital: Consulting Physician to St.

In order that we may realize the enormous advantages of antienteric vaccination, a comparison of the incidence and mortality of enteric fever in two divisions of the United States Army under conditions of season, latitude, duration observation, opportunity for exposure and numbers which are comparable, the first, of course, unvaccinated and the second vaccinated under the conditions above cited.

The Second Division, Seventh Army Corps, at Jacksonville, Fla., in 1898: Mean strength, 10,759; cases of typhoid fever, 1,729; deaths from typhoid fever, 248.

The Maneuver Division at San Antonio. Tex., in 1911: Mean strength, 12,801; cases of typhoid fever, 1; deaths from typhoid fever, o.

The results of antienteric vaccination are so striking, and the enormous saving to the army of its fighting strength by its use are so great, that the work of the Medical Corps of the United States Army in 1911 may be truly said to mark a new epoch in preventive military medicine.

Anti-Typhoid Inoculation.—By Paul Pattengill Gregory, M.D., *Albany Medical* August 1912. The process of immunization consists of three consecutive sub-cutaneous injections at intervals of ten days each. The first dose is five hundred million, and the second and third injections consist of one billion each of the dead bacilli. After each injection the patient usually develops some headache and a moderate rise of temperature but the discomfort is slight and of but few hours duration.

The duration of the immunity thus conferred is an important matter, which is not definitely settled as yet. By all who have had experience, it is believed to protect absolutely for a period of three years and perhaps longer.

The Treatment of Summer Diarrhœa in Infants.—By Harry Rulison, M.D., *Albany Med-Annals*, Sept. 1912. The three prime factors in the causation of the summer diarrhoes, are excessive heat, infections (enteric and parenteric), and improper feeding leading to metabolic disturbances. These causal factors are often interdependent; thus an infant taking a relatively clean milk may fall a victim to diarrhœa if the formula is not well adapted or if exposed to the summer heat of the city. Conversely, the same infant taking the same formula may thrive on a badly infected milk during the cooler months. It is interesting to note however, that the infant mortality in summer bears a closer relation to the temperature curve than to any other factor. The feedings should be small at first and the intervals short; the quantities being rapidly increased and the intervals lengthened as the case progresses. Water should be given abundantly. After a few days, provided there is no vomiting, fat is cautiously added (less cream is removed) until the desired percentage is reached: then barley, rice, or arrow-root may be added, without the addition of the salt, which is usually called for in the formulas for such decoctions, more than enough of the inorganic salts being supplied by all milk dilutions containing more than one-third milk. For this reason whey is harmful in certain cases as it contains practically all the salts of the cow's milk or more than three times the quantity contained in human milk. (It has been recently demonstrated that the preservation of the normal salt balances is of the utmost importance.) Sugar is finally added to the formulæ and gradually increased. In the addition of both sugar and starch one must proceed with the utmost caution, as these infants will often show an intolerance for one or more of the carbohydrates long after the stools assume their normal character. In some cases it is of advantage to substitute one sugar for another. Malt sugar is the most assimilable and least liable to undergo fermentation, but it should be remembered that it acts as a decided laxative to many infants.

Dr. Robert Hutchison, *The Lancet*, August 17 9112. *The Dyspepsias of Children after the Period of Infancy.* Dyspepsia in childhood, he said, was necessarily a wide and ill-defined subject, but it might be subdivided inth three classes:—(1) gastric (2) intestinal and (3) hepatic dyspepsia. Clinically, combinations of these varieties might be met with. With regard to gastric dyspepsia, organic disease was rare in childhood, apart from acute gastritis. Chronic gastriti swas frequently diagnosed, but it was probable that careful test meal investigation would show that many of the cases were due to some form of functional disorder.

Disorder of motility was the commonest cause, and might be inferred in those cases in which a splash could be elicited over the stomach some hours after a meal. The patients were usually of poor physique, badly nourished, and suffered from abdominal pains and mental depression. The condition was commonly spoken of as "mucous disease," and X ray investigation should be a profitable line of research. Hyperæsthesia was the most probable disorder of sensibility, and while it might account for some of the cases of pain referred to the upper abdomen it was extremely rare. Intestinal dyspepsia was characterised by flatulence, colic, and derangement of the bowels, and comprised cases of fever of intestinal origin; the majority of cases of dyspepsia in childhood came under this head. The pathology was obscure, but there were three possible causes: (1) defect of certain digestive ferments; (2) the presence of an abnormmal intestinal flora; (3) a diet containing excess of one class of nutritive constituent—probably carbohydrate. The great benefit obtained frequently in these cases by rigid limitation of carbohydrates strongly favored this view. Hepatic dyspepsia might be inferred when dyspepsia was accompanied by a deficiency of colouring matter in the stools. These children seemed especially liable to suffer from periodic vomiting, migraine, and bilious attacks. The condition might be due to a functional arrest of bile secretion, but the pallor, as in "cœliac disease," might be due to diminished absorption of fat concealing the presence of bile pigment. The benefit obtained in these cases by limitation of fat and carbohydrate in the diet would suggest that the disorder might be due to overloading of the hepatic cells with fat and glycogen. In the etiology of dyspepsia in childhood congenital predisposition played a large part. Children of neurotic families had difficulty in digesting milk in infancy, and in later childhood continued to exhibit dyspepsia in various forms. Many had the narrow subcostal angle, feeble muscular development, etc., characteristic of Stiller's "morbus asthenicus."

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EDITORIAL

INFANT CONSULTATIONS.

The medical profession and the general public are commencing to see alike with regard to measures calculated to reduce infant mortality, and to promote better health in the young. This agreement between medical men and laymen has been emphasized in many ways during recent years and by none more than by the willingness exhibited in the loosening of the purse strings to aid philanthropic endeavor when exercised to save infant lives. In Europe for some time schemes for the salvation of infants have been put into practice which are only now beginning to reach this country. Industrialism is not so rampant here and poverty is not so obviously evident. But industrialism is gaining with almost lamentable rapidity. American cities are becoming overcrowded. Slums exist in all parts of America and in short the signs are numerous that the cities of this continent present more or less similar features to those of Europe. In Europe during several years past "Infant Consultations" have been in vogue. In Belgium and in France they have been doing valuable work for a considerable time and more recently Great Britain and Germany have followed suit and in both these countries infant consultations have flourished exceedingly and have amply justified the hopes of their promoters. At the recent Congress on Hygiene and Dermography held in Washington Dr. Javet Lane-Claypon of London read an illuminating paper on the working of this latest system of conserving the lives of the city bred infants and in the American Practitioner, October 1912, Dr. Eric Pritchard describes fully and lucidly the main aspects of this saving campaign. It may be said that Dr.

Lane-Claypon is working in conjunction with Dr. Pritchard at Marylebone, is in fact Dr. Pritchard's right hand. According to the engrossing account in the American Practitioner, when the really serious work was begun in Marylebone, a London borough with a population of 126,000 or so, the infantile death rate stood at 121 per 1,000. In 1906 the establishment of an "Infant Consultation" was quite an experiment in Great Britain, and in order that it might prove a success in Marylebone, Dr. Pritchard its founder visited some of the best known institutions in Belgium and on the continent of Europe and borrowed from them some of their best points, and incorporated them with a number of new ideas of his own. It would be impossible within the scope of an editorial to describe the system in detail. The main object is to combat the ignorance which prevails among the working classes with regard to the rearing of infants, and to encourage breast feeding and proper methods of bringing up young children generally. With this end in view Dr. Pritchard has made of the Marylebone Dispensary a teaching center from which are sent out inspectors and health visitors whose duties are to see that the lessons taught at the dispensary are carried out in the homes. To the dispensary itself women bring their infants and are taught by example and precept by Dr. Pritchard and his able staff of assistants how to feed and care for these children. The number of cases attending has steadily increased during the six years the Consultations have been held and now thanks to the efforts of Dr. Javet Lane-Claypon there has been founded an "Association of Infant Consultations and Schools for Mothers." The work in Marylebone has been mainly educational. A large company of expert health visitors have been educated, a smaller number of medical men in the science and requirements of infants feeding, and nearly 2,000 mothers who have attended regularly at the consultations have been thoroughly educated, while in addition some degree of instruction has been given to every mother who has given birth to a child in Marylebone and who stood in need of such assistance. As Dr. Pritchard points out, it is quite astonishing how knowledge of this kind spreads through a population; it becomes as it were highly infective, the consequence being that at the present time there are few poor mothers in Marylebone who do not know hwo to feed and bring up their children and that this knowledge has been put into practice in a satisfactory manner is shown conclusively by the fact that the infantile mortality in Marylebone is now under 100 per 1000 and bids fair soon to come down to 90

Dr. Lane-Claypon in a paper read before the recent Congress in Washington said "Without understating the value of a good milk supply, experience has shown the still greater value of the direction of the general hygiene of the infant, such as can be carried out by an Infant Consultation with its staff of qualified Health Visitors, Such organizations actively encourage breast feeding and in the case of artificially fed children the amount of milk, and the number of feeds given is regulated and overfeeding prevented: the general condition of life of the child, and of the mother are also supervised and faulty points can be quickly corrected." The essential point is that breast feeding is encouraged whereas, in the case of milk depots generally artificial feeding is rather encouraged. Although, of course, this is not done directly, yet when a mother is taught that modified pasteurized milk is a good substitute for breast milk, she is too apt to substitute that form of feeding for the natural mode and save herself a considerable amount of trouble. If she were taught as she is taught at "Infant Consultations" that breast feeding is the only proper mode of rearing an infant and encouraged in every way to use nature's food, there would soon be less artificial feeding, and a greatly reduced infant mortality. There is plenty of room for "Infant Consultations" and their wise teachings in this country.

THE REAL SIGNIFICANCE OF THE ENLARGED EPITROCHLEAR GLAND

It is probably not far from the truth that more than two thirds of the present generation of active physicians were taught to attach a special and pathognomonic meaning to enlargement of the epitrochlear lymph follicles. There are few undergraduate lecture rooms where, some time in the course, the professor has not announced that enlarged epitrochlears are exclusively associated with syphilis, meaning, i.e., not that syphilis always affects these follicle ,but that if the follicles are affected syphilis is the cause.

There is not much doubt that the statement is erroneous. Careful observation for more than a year past in one of the largest dispensaries in this city have been made by the writer of this editorial. Males and females of allages were included. Between 1200 and 1600 consecutive cases were examined. The results were surprising. In about 60 or 65 per cent of the cases both glands were more or less enlarged. In about 10 per cent more one gland only was enlarged,—thus leaving about 25 per cent only in whom glands could not be felt on either side. In all the positive cases the history and physicial signs of syphilis were carefully sought for elsewhere, but not a tithe of them could be supposed on any reasonable ground to have suffered from either hereditary or aquired lues. Moreover, this particular dispensary is located on one of the foreign quarters of the city where syphilis is comparatively and surprisingly rare.

The cause is certainly in many cases non-specific. A certain number, particularly of the unilateral type, are of course due to bacterial infection of the forearm, hand or elbow. In palmar eczema, psoriasis of the forearm or elbow, furunculosis, septic infection of the nails and fingers,—such lymphatic swellings are common enough to be surprising by their absence. In the two varieties of leukemia not only one but the whole chain of epitrochlear glands may be swollen. The same may be true, though opportunities of observation are of course more rare, in pseudoleukemia or Hodgkin's disease. A large portion of the reminder are attributable to scrofula, and if to this we add the very common "lymphadenitis simplex" of the tenements (an affection which is so far obscure in its etiology but is certainly not specific) we have probably explained a large number of the non-specific cases.

The opinion would seem tobe justified that thespecial connection of syphilis with epitrochlear lymph nodes is a "fallacy of observation."

HABIT SPASM IN CHILDREN

Habit Spasm has been defined as "certain oft-repeated and seemingly purposeless movements which most commonly affect the face and head, and which, although they may change in character from time to time, are for varying periods persistent, whether the movement be a simple twitch of one muscle or the more complicated action of several muscles."

As will at once be recognized, it is a very common affection, the form most frequently observed consisting of a rapid blinking of the eyes, or possibly a "screwing up" of the eyes. In certain cases this is the only form of spasm that develops, but more often others follow it, the original spasm either persisting along with the later forms, or replaced by them. Occasionally one sees the eyes themselves affected, turning upward or sideways, or rolling in various directions. Various movements of the face are also not uncommon, twitching of nose or mouth, eyebrows or forehead, sometimes the head is nodded or shaken, or tossed abruptly upward. Less commonly the limbs are affected, and the arms more frequently than the legs. The movement most often seen is a shrugging of one or both shoulders. Still gives an account of a female child of 11 years, who for three weeks had the habit of snapping her fingers, a habit which at the end of that time was suddenly abandoned and replaced by an upward jerk of the head. Another girl of 8 years also struck her chest repeatedly with her hand, changing to the blinking habit and after that a jerking of the head. Still another child, a boy of 8 years old, blinked for eight weeks or so, and then began to "paw the ground like a horse." A girl of the same age always stood on tiptoe when about to speak. Movements of the trunk are uncommon, but do occur. A very annoying, and not uncommon, form of habit spasm or "tic" is the repetition of some peculiar or meaningless sound, perhaps an articulate word or syllable, perhaps a mere grunt or gurgle or clearing of the throat. One curious feature of habit spasm is the fact that it decreases or ceases entirely in many cases if the child is concious of being watched.

An almost endless variety of forms exist, even one which has been, aptly enough, termed "psychical tic." This is generally a feature of a case in which the movements have been marked. In one girl, 8 years old, the first symptom was the usual blinking, this followed by shrugging of the shoulders, and this by the use, apparently without realization by the child, of obscene language.

A boy 10 years old, began with clearing the throat, followed by a frowning movement with a jerk of the head, and two years later he insisted that he had "microbes on his hands" and refused to take food with them. Commonly, however, the "psychical tic" is manifested in great excitability, passionateness or morbid waywardness.

The sexes are about equally affected, with a very slight preponderance in the number of girls. The greatest number of cases occur between the ages of 5 and 9, and we almost invariably have a history of nervous instability , as shown by the disorders associated with the spasm, nervousness, headache, somnambulism, and enuresis. Rheumatism is frequent in the family history. Mental strain, shock or excitement are frequent etiological factors and so are various forms of local irritation, dentition, carious teeth, ocular defects, catarrh and adenoids.

The difficulty in diagnosis lies in distinguishing some forms of tic from some forms of chorea. In many cases this difficulty is not met with. In tic we have a repetition of one movement or set of movements, whereas in chorea the movements vary irregularly. Habit apsam is usually much more limited in distribution and is lessened by watching, whereas chorea usually increases under observation. It is unsafe to attach too much importance to the last named distinction, however, as it may occasionally be reserved in both cases. Also, a slight chorea, limited in extent, may be difficult to distingusih from some of the habit spasms, and a hasty diagnosis is frequently impossible.

Yet a fairly prompt diagnosis is important, since the treatment of chorea is diametrically opposed to that of tic. In the former, rest in bed is indicated, whereas outdoor life is the best treatment for the latter. Lessons must be stopped, and recommenced only after pronounced improvement, and then tentatively. Any form of local irritaton should be discovered and removed, excitement and fatigue avoided, and the child should not be scolded or punished for the peculiar movements, as is too often the case when parents set them down to "naughtiness" or carelessness. In certain cases, the child does better at school than at home, but this is when the home influences are such as to encourage neurotic tendencies. Always late hours should be carefully avoided. Still cautions against the removal of adenoids except in cases of extreme necessity, as the "nervous disturbances caused by fright of the operation or of the anesthetic has made some cases of habit spasms much worse." As for drugs, the most useful is liquor arsenicalis, 3 to 4m., with 5 to 10 gr. of bromide three times a day. This is kept up for 3 or 4 weeks, reducing the arsenic if necessary, then discontinued for a fortnight, and resumed again for another period of three or four weeks.

Experience seems to show, however, that change of environments "especially living among strangers," is often of more avail than drugs.

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ORIGINAL ARTICLES

NERVOUS MANIFESTATIONS WITH INSOMINA AND PAVOR NOCTURNUS IN YOUNG CHILDREN

An inquiry into the cause of the same

By **LOUIS FISCHER, M. D.**

Attending Physician to the Willard Parker Hospital, etc., New York City.

The majority of children are nervous. This condition is noticable in the rich as well as the poor. The question naturally arises—why should a child be nervous or sensitive or afraid especially where healthy organs exist? Children rarely have vices, by the latter I mean, they do not crave alcohol consequently we can rule out the disturbances of the nervous system, incident to the abuse of stimulants.

In like manner children do not abuse tobacco, hence the habits of the adult are wanting as etiology factors. They have no business cares, they have not the worries of a devoted mother —in fact serious life questions are *conspicuously absent.* And still look at growing children especially those from 8 to 16 years—and we are amazed at the larger numbers who suffer with what one can term neurotic manifestations. St. Vitus dance is very common—and choreiform twitchings in addition to facial tics are well known. Then is hardly a school in this country—Public or private—where very many cases cannot be seen daily. Look at the number of school children who wear eyeglasses—simply to correct eye twitching. They tell the story of some disturbing factor. In many cases it is the fault of too much reading of trash, the wild west scout—with murder and blood and pistols and daggers, the boys greatest delight. The sensational literature devoured by the young girl. The thrilling love story, in addition thereto the daily newspaper is responsible for many nervous manifestations in children. The child hears gruesome tales, sees pictures of shooting description of murder and headlines which terrify and frighten them. I have frequently seen night terrors, in girls, about the age of puberty, in apparent health, after reading a sensational evening paper. They will suffer with insomnia, talk in their sleep, scream and grind their teeth and grasp at imaginary objects, and if awakened will describe a terrible dream. Bad dreams are merely contiuned impressions received while awake, and they exert a disturbing influence, especially if the child was frightened or chocked by reading.

Columns of sensational court scenes are poison for the delicate nervous mechanism of growing children. The stories of the vice crusade and of the white slaves and the detailed accounts, how a young girl was spirited away and then led a bad life under force, all has been mentioned to me by mothers as a reason for the fear which their child suddenly developed.

The daily news paper is read by old and young, it enters the house and brings happiness and sorrows. The child's brain is receptive to all influences and hence absorbs all forms of news good or bad. The brain can be moulded just as clay in a scupltor's hand, a child is of an inquiring mind because it desires to know that which appears strange. The brain is a soil on which all form of seeds develop, can we wonder then that sensational news such as the detailed description of a murder trial or a suicide will startle a healthy child and disturb its nervous system. How frequently are we consulted for the relief of insomnia only to find that some harrowing tale or some tragedy was responsible for the sleepless nights. It is because of the frequency of bad dreams and the occurance of night terrors, that I have frequently prohibited reading of any kind especially in the evening. Children are sensitive and because they are sensitive we must keep all irritant factors away from them. I have seen a child of fourteen, who received a scolding for not doing her lessons properly awaken at mid-night with a sudden scream and fright and continue such hysterical sobbing for one hour. In the morning, the child did not know what transpired the night before.

We must always be on the lookout for masturbation in boys as well as girls, as a cause for restlessness and insomnia. Likewise—worms will cause irritation and disturb sleep –bed-wetting--due to irritation of the gental tract in boys and elongated prepuce will at times be a disturbing element. An overloaded colon with stagnant feces and flatulence will by pressure on the diaphragm cause insomnia.

Such nervous disturbances are benefitted by rest—by change of air. A child living in the city should be sent to the country, also should be compelled to walk, and by all means to have mental rest. A warm bath followed by a spinal douche or cold shower and a brisk rub with a coarse towel is invigorating. Light food, very little meat, all dairy products, plenty of fruit is indicated, sleeping in a cold room is important.—162 West 87 Street.

SOME POINTS ON PULMONARY FIRBOSIS IN CHILDREN[1]

By CHARLES MILLER, M.D., F.R.S.

Assistant Physician to the Hospital for Consumption, Brompton; Physician to Out-patients, Victoria Hospital for Children.

Pulmonary fibrosis, like fibrosis in other regions, is the result of the response of connective tissue to the processes of inflammation. During the stage of acute inflammation of any organ, we are apt to focus our attention on the damage done to the parenchyma, and to overlook the pathological changes that we know are taking place in the intestitial tissue. Fortunately, in the majority of cases of acute inflammation of the lungs the interstitial changes do not persist, and the resolution takes place in the interstitial tissue and in the pulmonary alveoli at much the same time. But in some the resolution does not take place, and the interstitial changes become more obvious as fibrosis develops. I now propose to deal with some points in connection with pulmonary fibrosis in children, its ætiology, physical signs, and treatment.

It is obvious that acute pulmonary inflammations of any sort can be followed by fibrosis, but certain varieties are particularly potent in causing what we loosely term fibroid lung. Of these the broncho-pneumonia of measles is one of the commonest, and the morbid anatomy of this condition is very distinct. It is possible for an expert pathologist to hazard the post-mortem diagnosis of measles from the appearance of the lungs. The important features are the widening of the lumen of the smaller bronchioles, and the large amount of peribronchitis. The widening of the lumen has been termed acute bronchiectasis; the peribronchitis gives the appearance of a yellowish-white ring round the bronchiole, which sometimes is soft and purulent. In measles, therefore, broncho-pneumonia is associated with softening of the wall of the bronchioles, widening of the lumen, and exudation into the peribronchial connective tissue.

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[1] A demonstration given at the Hospital for Consumption, Brompton. November issue Practioner, London, Eng.

Second in importance must be placed whooping-cough. Broncho-pneumonia in this disease usually occurs late in its course. The paroxysms have damaged the bronchioles, distended alveoli, and then caused interstitial emphysema; on the top of this broncho-pneumonia is added. The condition is then different from the ordinary broncho-pneumonic lung.

The last of the great predisposing factors is rickets. It is well known that rickets predisposes to bronchitis and broncho-pneumonia. It is frequently noticed that such children take longer to get well, and the signs are slow to clear up. Further, the muscular hypotonus and the softness of the ribs are important factors in the causation of the deformities of fibroid lung.

These three diseases, measles, whooping-cough, and rickets, either separately or together, are found to have been present in a great many cases at the onset of symptoms which later are attributed to fibroid lung. Of course, there are many other causes of pulmonary fibrosis; any form of pneumonia may cause fibrosis, if the usual resolution does not take place. It is said that pleurisy can give rise to pulmonary fibrosis. At any age this is a doubtful cause, but in cases of successfully treated empyemata, there is a great amount of pleural thickening, from which strands enter the peripheral portion of he lung. This, combined with the consolidation due to collapse, produces a type of fibrosis rather different from the broncho-pneumonic form. It is possible to multiply ætiological factors, but they all have the underlying condition of inflammaton of the lung. For example, I saw a child with a large pericardial effusion causing pressure on, and collapse of, the left base. The pericarditis cleared up, but the aeration of the lung never followed, and there is now a fibroid lung with the heart pulled over into the left axilla, and an area of resonance by the left sternal border, where the cardiac dulness should be.

The morbid anatomy varies in different cases, but certain features are worthy of note. The lung tissue is airless, leathery, tough, and of marbled pattern; bands of fibrous tissue, the results of overgrown septa, are striking features. The pleural covering is thick, and may be sending strands into the lung; dense pleural adhesions bind the lung to the chest wall. The bronchi are frequently distorted, the lumen is widened, and there is much fibrosis of the peri-bronchial region. The bronchial mucous membrane may be swollen and velvety, or it may be absent, and the bronchial wall bare and smooth. The distortion of the bronchi frequently leads to the formation of bronchiectatic cavities, which may be empty, or full of purulent secretion.

We can imagine that a fibrosing lung exerts a pull through pleural adhesions on the chest wall, and on the dense structures of the root of the lung and in connection with it . In some individuals, we may find great sinking-in of the chestwall, in others bronchiectatic cavities; but in the majority a combination of the two conditions, with or without displacement of the heart . Deposits of caseous or calcareous tubercle may be found. They are most common in the fibrous septa in the lung, and in the glands at the root of the lung .

I have refrained from describing primary pulmonary tuberculosis as a cause of fibroid lung, for I believe that in children fibrosis due to tubercle is rare A large number of fibroid lungs show deposits of tubercle post-mortem, but they are almost certainly deposits in a tissue already damaged. Although pulmonary tuberculosis is not uncommon in young children as a primary disease, the course is one of rapid destruction of pulmonary tissue and not of fibrosis . In my experience, it is unusual to find tubercle bacilli in the sputum of children who have pulmonary fibrosis Post-mortem, it is common to find hypertrophy of the right ventricle, with or without patches of adhesions in the pulmonary artery. The position of the heart may be altered by the pull of a fibroid lung, adherent to to the external surface of the pericardium.

Clinically, we have to make the diagnosis after hearing the history, and discovering the physical signs. Whenever it is possible, the sputum should be examined. Young children will not provide specimens of sputum to order. A specimen may be obtained by making the child sick, and retrieving the sputum from the vomit. An easier method is to put a spatula down the throat. The child will retch violently, sputum will come into the pharyhx, and can be removed on the end of the spatula or with a spoon. The symptoms, as obtained from the mother, are chronic cough with recurrent attacks of bronchitis, shortness of breath and not thriving. The family history generally reveals some members who have weak chests, diagnosis uncertain, or definitely tuberculous. It frequently happens that a child with a fibroid lung, non-tuberculous as far as clinical examination goes, has a consumptive parent. The heritage of "weak chest is not to be scoffed at, although the term is unscientific.

THE GENERAL APPEARANCE.

The appearance of the child is that of a mouth-breather. Adenoids or other causes of nasal obstruction are usually present. The face is generally sweaty; the eyelashes are long and curved. The fingers are frequently clubbed. There may be signs of former rickets in the bossed square head, and large radial epiphyses.

EXAMINATION OF THE CHEST.

Inspection may reveal some deformity, there may be flattening or retraction of one side or both. Deficient expansion may be observed. A diaphragm sulcus is usually visible. Pulsation in the third and fourth left interspaces may be seen, on account of the uncovering of the heart through the contraction of the lung on the left side. The apex beat may be out of place. The heart may be pulled round to the axilla by fibrosis of the left base, or behind the sternum and even to the right of it by the pull of a fibroid right lung. Deformity of the chest and displacement of the heart are the chief of the physical signs. Clubbed fingers and toes are fairly common, but are not usually so distinctive as they are in cases of congenital heart disease. The abdomen is usually prominent, being distended with gas; if the liver and spleen are palpable, the increase in size of these organs may be due to rickets or to lardaceous disease.

In the more obvious cases, the diagnosis is very simple; in the less definite cases, the condition is difficult to diagnose with certainty. If the patient is suffering from one of the frequent attacks of bronchitis, it is impossible to diagnose the chronic fibrous condition with certainty until the signs of bronchitis have disappeared. In many of the difficult cases, an X-ray examination of the chest is advisable. In those who have bronchiectatic cavities, the signs change from day to day, according to the amount of secretion present in the cavities.

TREATMENT

Having diagnosed the condition as pulmonary fibrosis, the treatment must be adapted to the requirements of each individual patient, but there are certain features which occur in the majority of patients. These nearly always require consideration, and we may regard them as being general and local.

General Treatment.—It goes without saying that climatic conditions are important. Town life is particularly bad for such children, and almost any country air is better than that of the slum dwellings. Perhaps it is not so much the air as the country life that is important. But of the many suitable places for these children special mention must be made of the Surrey hills and the Broadstairs coast; it is wonderful what a change a month at these places will work in a child. The diet needs little mention. Plain well-cooked food, plenty of meat and fat, with not much starchy food is the best diet. An article of the highest value is bacon or bacon dripping. The chief object is to nourish the child without causing gastric or intestinal catarrh. For this reason, it is necessary to limit the amount of cakes, sweet puddings, potato, crumb of bread, etc.; but strict dieting is unnecessary. Slow eating with a rest before and after food, is important in this as in other pulmonary diseases.

The question of mouth breathing is important. Very many of these children have adenoids. It is the custom in many quarters to refer all respiratory diseases in children to adenoids. I do not deny the importance of nasal obstruction as an ætiological factor, but I am convinced that adenoids are a result rather than a cause of fibroid lung in the majority of cases. A child, or other person, suffering from thoracic disease which makes him breathless, finds the nasal method of inspiration too great a labour. In consequence of this the mouth becomes the more favoured air passage, and the nose suffers from disuse.

If the airway through the nose is not in constant use, the passage becomes blocked, with the result that adenoids and swollen turbinates are common.

There is no doubt that the nose should be cleared, and by operation if necessary. It may be necessary to repeat the operation, but in all cases it is essential to teach the child how to use the nose as a breathing organ. Failure to do this leads to the necessity for second and third operations. But it must be remembered that too much benefit is often promised as a result of the operation. It is well to state that the object is to clear the nose so that the airway may be free, and that attention to the nose will be necessary, until the passage is clear and remains clear. Elaborate breathing exercises are not necessary. They are difficult to have carried out, and some authorities maintain that they produce emphysema. It is sufficient to say that the mouth is to be kept shut, except when eating and speaking. I usually make a child sit still and breathe with the mouth shut. Later on, walking with the mouth shut is practised, until the child can walk easily without any distress in the breathing.

Local Treatment.—But the main object in treatment is to improve the local condition. We have to consider various points. If possible, we must increase the amount of aerated lung; we must get rid of secretions; we must control the cough, and diminish the frequency of bronchitic attacks. These points go more or less together, and the improvement in one direction leads to amelioration of the other symptoms. The most important part of the treatment consists of expanding the chest by simple arm exercises. The actions of the ordinary dumb-bell exercises, but without dumb-bells, are the best. Bringing the extended arms from the side above the head and down again; extending the arms in front of the chest until the palms touch, and them bringing them back behind the trunk will expand the chest. In addition, exercises with flexion and extension at the elbow can be added. These exercises are all simple and easy, and can be performed satisfactorily in the most primitive household. At the same time, an attempt must be made to take the inspirations through the nose with each expansion of the chest. There is no doubt about the improvement that results from these exercises. Shortness of breath disappears, liability to bronchitis is lessened, the shape of the chest is improved, and the general health becomes better. So uniformly certain is the improvement, that I do not let the possbilitiy of added tubercle prevent me from recommending them. In fact, the possibility of producing well-regulated auto-inoculation by these means must be remembered. In older subjects, it is possible to regulate auto-inoculation by graduated labour; in children, regulated arm exercises may produce an equally beneficial result in the same way

Other treatment is chiefly directed at the correction of some existing symptom. Cough must be treated, usually with stimulant expectorant mixtures, such as the Mist. Ipecac. Ammon. of the hospital pharmacopœia. If there are signs of dry bronchitis with little sputum and a wearisome cough, 3 grains of potassium iodide should be added to the mixture. If there is much cough without signs of bronchitis, a sedative linctus should be given. If the sputum is offensive, creasote may be given. When the cough is definitely due to pharyngitis, the pharynx must be treated. The child should gargle night and morning with an alkaline lotion. Rubbing the chest night and morning with turpentine liniment does good, though the rubbing is probably more important than the liniment.

If there are bronchiectatic cavities, they must be kept empty. A good cough every morning will usually ensure this. Sometimes with older children, it is necessary to make them lie face down with the trunk and legs raised. A good cough in this position will usually empty the cavities. With younger children, it may be necessary to make them sick at intervals so that the act of vomiting may empty the cavities. For this purpose, a full dose of powdered ipecacuanha is the best agent, being far superior to the wine, which makes many children drunk before they are sick.

General nutrition must be maintained by the usual means of stimulating the appetite and giving a good mixed diet. Cod-liver oil should always be given.

GENERAL REMARKS.

It may be asked, "What happens to these children?" It is a difficult question to answer, for, although these patients belong almost entirely to the hospital class, they are difficult to trace after they become too old for children'shospital; nowadays, there is a further complication in the examination by the school doctor. I frequently receive a verbal message that a child has consumption, and must be sent to a sanatorium at once. Usually this happens with a child whom I have treated foryears, and failed to find tubercle bacilli in the sputum. But the after-history of these children is obscure; many undoubtedly grow up, and arefound at chest-hospitals. Perhaps they do some work at times, but periodically they break down, and their career tends towards chronic invalidism. Others certainly have an existence that is nearer the normal, and they seldom break down. A good many become tuberculous, and a large number are carried off by acute respiratory diseases before they reach adult life. The manner of death is usually some acute pulmonary inflammation. A few die from lardaceous disease. Occasionally, death occurs from some cerebral conplication, such as abscess or meningitis.

In spite of the gloomy outlook I have depicted, a great deal may be done to improve the health of these children in the ways I have described.

THE TREATMENT OF NIGHT TERRORS IN CHILDREN

By JOHN ALLAN, M.D., D.P.H.
Liverpool, England.

Night terrors are of frequent occurrence among children, and, though not dangerous in the sense of being likely to cause death, they ought to receive most careful treatment. When a case comes under observation the first thing to do is to make a careful epological investigation to ascertain if there is any underlying cause to account for the complaint. Examine the state of the digestive tract and nose if there is any gastro-intestinal disturbance. Many of these children suffer from chronic dyspepsia, some are constipated, while in others the gate-way of the alimentary tract, the mouth, is in a very unhealthy state. Find out if there is any error of refraction—quite a common exciting cause Have the state of the nasal fossa and the throat, for it will be found that hypertrophied tonsils and adenoid vegetation are often present; and (apart from actual obstruction) the treatment of an unhealthy naso-pharynx will often serve to remedy the condition. See that the child is not being overworked at school—

the worry of lessons or the fear of punishment will often be responsible for the precipitation of an attack. Among other causes may be mentioned intestinal worms phimosis, night sweats, aural vertigo, bodily pain, febrile distrubances, etc. In some cases a careful examination will fail to reveal any exciting cause and such cases have to be classed as "dispathic." In some the children come from neuropathic shock, while in others there is a family history of rheumatism.

With regard to treatment it is obvious that any exciting cause if detected, should be remedied, in fact carry out the ccausal treatment. I do not intend to enter into a discussion of the appropriate measures to be taken for each cause. What I wish to consider is the general management of the case after the causal factor has been corrected or of the case where no cause is apparent.

Of primary importance is the correction of the dietetic regime. Apart from those cases in which there are symptoms of gastric or intestinal dyspepsia the dietary is frequently at fault. These children generally get far too much starchy food and sweets. Therefore one of the first essentials is to cut down the carbo-hydrate intake and reduce to a minimum or stop entirely all sweets. All excitants such as tea and coffee should be suppressed, and needless tc say alcohol in any form should br prohibited. It is also wise to see that too much fluid is not taken in order to avoid dilatation of the stomach. Indigestible or simply very rich foods should be avoided especially at the evening meal. These children should have dinner in the middle of the day, not in the evening; and the evening meal should not be taken just before going to bed. A good plain dietary is to be recommended and may consist of bread and butter, toast, eggs, fish , rabbit, fowl, meat in moderation, vegetables, fruits (raw and cooked), etc. Unfortunately the children of the present generation have such bad teeth that they cannot properly masticate many articles of diet which are quite suited to their requirement.

In the presence of any gastro-intestinal disturbance a strict dietary should be rigedly adhered to, but in other cases a little latitude may be allowed. It cannot be two strongly urged that each case should be thoroughly investigated, for modifications may be required to meet individual peculiarities.

After overhauling the childs' dietetic regime it is important to see that the child leads a hygienic life. It is well to enforce life and exercise in the open air. The child should during the day live out of doors as much as possible and at night care should be taken that the sleeping apartment is well ventil ted and that there is free access of fresh air. This is easily accomplished by having the windows kept open at night, and the only precaution necessary is to make sure that the child does not lie in a draught. The bed clothes should be ample without being excessive. The exercise in the open air should be indulged in short of fatigue, and any healthy games which appeal to the child may be permitted. A daily cold spray is invaluable. At first it may perhaps be advisable to have the spray tepid, but as soon as the child becomes accustomed to the spray cold water should be used. A cold rub in the morning or the wet pack are other useful measures on the same lines. It must always be remembered that the cold tub or cold spray should not be insisted on unless the characteristic after-glow of the skin follows.

The education of the child must be carefully supervised and proper mental hygiene must be enforced. It very often happens that these children are intellectually brilliant. They do not require to be driven to their lessons; efforts have often to be made to check their too eager search after knowledge. School work ought to be temporarily discontinued and under no circumstances showed the child be permitted to engage in competitive examinations. Supervision at home is also necessary. Great care must be taken as to the books the child is allowed to read. Exciting stories, and especially ghost stories must be vetoed. The person in charge of the child should not be given to recounting hair raising tales, but should make every endeavour to guide the child's thoughts into restful and healthy havens. It requires some one endowed with good common sense to take charge of a child whose mental condition is in this unstable state. A certain amount of firmness may be necessary, but there should be no attempts to bully the child. It may be here remarked that it is cruel to leave such a nervous child without a light in the bedroom.

With regard to internal medication that is in my opinion of secondary importance. Much more can be done by the general treatment outlined above. However the exhibition of drugs is often of advantage. If the attack of night terrors has come on after a heavy indigestible meal in the evening, relief will probably be best obtained by giving an emetic and so emptying the stomach of its unwelcome content. Bromides are always useful and the administration of 5 to 10 grains of potassium bromide at bed time will often allow the child to have a good night's rest. Bromural in suitable doses is a valuable remedy in this condition. If there is anaemia or debility iron and arsenic are indicated, while if there is gastric derangement a mixture with bismuth and rhubarb is of service. In rheumatic cases sodium salicylate or acetyl-salicylic acid may be prescribed. Potassium citrate acts well in some cases. Whatever drugs be ordered it should always be borne in mind that each case has to be considered on its merits. Night terrors should never be neglected. An attack may not appear to be of much significance but as some one has very aptly said, "it is the 'slacken-speed' to the engine driver which must never pass unheeded."

SCHOOLS FOR THE FEEBLEMINDED—THE STATE'S BEST INSURANCE POLICY

By IRA M. HARDY, M.D.

Superintendent of the North Carolina School for the Feeble Minded.

Kinston, N. C.

In addressing you on the custodial care, humane treatment and scientific training of the feebleminded, and that specifically designed institutions for carrying out these laudable purposes are the best insurance policies in which the state can invest, I believe are such self-evident facts that they should need no other demonstration than that involved in the effective work which they perform for the unfortunate and irresponsible, and in the general uplift of society, and the wholesome regeneration which accrues through them to the state in the prevention and lessening of pauperism, degeneracy and crime.

Feeblemindedness is a very general and comprehensive term, applicable in a general way, to most of the shortcomings of private and public life, as illustrated in misgovernment of the state, the community and the family, and as exemplified in the diseased, the dependent, the degenerate, and the crimininal life of a very considerable portion of mankind. Taking the term in its broadest signification, it includes almost every phase of human life from simple aberrant mentality, through the various grades of neurasthenia, hysteria, epilepsey, and idiocy, up to clearly defined mania. All these various degrees of abnormality have their low, medium and high grades of development, with delicate pivotal balances alternating between under and upper normality, so that it is oftentimes difficult to distinguish the man or the woman who is sound mentally, from the unsound.

The tests which are made to determine the insane, established by alienists and scientific specialists, medical or otherwise, are of so searching and sweeping a character, that few so-called normal people could undergo the ordeal without in some degree being regarded as abnormal. However, we all know that the normalities of mankind far exceed their abnormalities, many of which have probably not so much to do with heredity, as with their acquirement after birth through accident, disease, isolation and environment. But to whatever cause due, we have feeblemindedness, with direct and indirect tendencies towards its alarming increase. It is not that it so much affects the individual and the family, but that it premates the community, the state, and the race. All these are so closely interwoven that what effects the one concerns the whole, whether for well or ill being.

Acording to my view of the subject, based on observation and experience, there are many degrees of feeblemindedness before idiocy or incipient insanity is reached, which could be either prevented, modified, or arrested altogether, before the opportunity is offered it to develop more serious and dangerous symptoms. From boyhood up, I have been more or less interested in such cases in my own and adjoining communities, and I feel and know that they had great influence on the trend which resulted in my adoption of the practice of medicine as a profession. I took up the study of the latter, not so much for its dignity and emoluments, as from the real desire to be of some benefit to man kind, and the number of years that I have practiced my profession has not only deepened and enlarged this bent, but has given me such an insight into the condition of the unfortunate, that whatever professional skill and manhood I may have within me, all seem to go out to the downtrodden, afflicted humanity, irrespective of any dollars and cents that may accrue from the work.

I have given earnest study to the mentally and physically deficient, and it has been done in a quiet and unobtrusive but nevertheless effective way—hoping ever, that if I could not, prevent, I could at least mitiagte some of the suffering in my midst and I have left to my brother physicians, who were probably more enimently fitted for the task, the care and treatment of the more general diseases of the public, while I more directly turned my modest endeavors toward the study and amelioration the mentally and physically defective, madeso either through inheritance, or by acquirement after birth. I felt that the well-born child,woman or man,in the exigencies of life to which they are susceptible, could be well and efficiently cared for by my professional brethern, while I had a different mission in life which I proposed to follow.

The result of all this, that in time, I was most fortunate to enlist the sympathy and co-operation of the good people of my state in this humane work, to the extent that through the legislative and executive departments, a school for the custodial care, humane treatment and scientific training of the feebleminded was chartered by the Legislature, and a state bond issue of $60,000 was authorized to begin the work. The good, generous people. of my native city of Kinston, in the grand Old North State, made this laudable enterprise successful from the very start, by their munificent donation of nearly one thousand acres consisting of cultivated farm land, of pine and oak forests, situated within one of the most beautiful suburbs of the City, on an elevated plateau, gently descending to the waters of the historic Neuse River.

The state, in its preliminary undertaking, has now in the course of construction, rapidly nearing completion, the necessary buildings to care for—to start with—about 130 inamtes. These, in connection with the large farm and its appurtenances, will have nearly every needed requisite for their care and training, if not for their partial maintainence. As the superintendent of this inchoate institution, and as a physician, I appear before you to speak upon the great subject of the feeblemindedness of man, and especially, of that which pertains to the children,the woman, and the men of our beautiful Southland—to enlist your cooperation to the extent that your noble state, like my grand, old state, will take wise and prompt measures to prevent as well as to mitigate, the great evils which already accrue or may accrue from the feeblemindedness in your midst, so as to prevent its expression in pauperism, harlotry, or crime.

As yet, I come to you with no other experience in the line of institutional care of these unfortunate waifs of humanity, other than my observations, studies and researches in this particular domain of illy developed human life, with the added experience of years of medical practice and the careful observation of the workings and results acheived by institutions founded and operated for the specific purpose of preventing and assuaging the ills referred to.

Whether I am well or illy fitted to talk upon the subject of feeblemindedness, you must be the judge. I will say, however, that I am still the veriest student in this, the greatest of all the departments of sociology, and that it should take the precedence of anthropolgy, ethnology, and the other sciences relating to man and his subdivisions into races. It is the hand-maiden—the twin-sister of biology, as the latter applies to human life. I will endeavor, however, to give you my views, and why I believe, feel, and know, that the founding and operation of institutions specifically adapted to the care of the feebleminded unfortunates are the very best kind of insurance in which any civilized state or government can invest. In the first place, it goes to the very root of human life itself—to the foundation of every moral and law-abiding community—and lastly, to the prevention and mitigation of much of the human misery, pauperism, degeneracy, and crime with which the state has to deal. This has been and is being practically demonstrated by every civilized nation that has humanely and rationally taken hold of this great problem.

As I have already shown, the first step in the policy of the prevention and mitigation of dependency, degeneracy, and crime is to provide adequate institutions of the kind outlined, to receive the unfortunate persons who are so urgently in need of permanent care. And also, that if taken at the proper age, feebleminded children can be wonderfully improved. Indeed, it is said that if care for this class of feebleminded unfortunates were had adequately for a generation, the expenditures for prisons, reformatories, asylums, hospitals, alms-houses, police, and fire losses, would be enormously reduced, or what is even better, expenditures for such purposes would be accomplishing desirable tasks which we have as yet not had the courage undertake. The part the people and the state can take in conserving these human strains is hardly realized. We may say that the hereditarily defective child should never have been born, yet he cannot be put out of existence, but should be cared for, developed, and trained, at least, to the extent of being in a measure self-supporting harmless to society. In order to accomplish this with the least expense to the state, and with the best advantage to himself and to the community in which he resides, he should be taken charge of in his earlier years, which are the ones of his greatest receptivity.

Dr. Henry H. Goddard, who takes front rank among the highest authorities in the worl on feeblemindedness, and especially on the custodial care and training of such unfortunates, says: "It should be manual training first, last and all the time—training that is adapted to the child's special ability, making him happy, contented and useful."

This, I believe, will solve the problem of feeblemindedness, so far as it is capable of solution. We have now in America, as well as in Europe, large colonies where groups of these defectives live as nearly a normal life as it is possible for them to live. It is stated that they do the work on the farm, plant the crops, care for them, and gather them. In fact, they do all of the routine work of the old-fashioned farm, but always under the supervision and direction of expert farmers who are able to utilize their abilities to the greatest advatage. "They are perfectly content, and no one visits these institutions and studies the conditions, without feeling that here is the true solution of one of the greatest social problems that is now facing our advanced civilization."

To illustrate this more fully, I have before me the annual report for 1910, of Dr. Walter F. Fernald, superintendent of the Massachusetts School for the Feebleminded, at Waltham.

This institution is a model one of the kind, and accommodates nearly 1,400 mentally and physically defective presons. Its good work speaks for itself in the fact that the boys take lively interest and pleasure in the farm and the garden work. They do all the cultivating and harvesting—all the sowing and nearly all the hoeing. Other boys assist the baker, carpenter, blacksmith and engineer. The shoes of the nearly 1,400 inmates are kept in repair by the boys. The boys also do all the printing of stationary blanks, circulars, etc., for the school. They, furthermore, do much of the house work in the buildings where they live, and also serve as errand boys.

The girls are kept just as busy as the boys. In the laundry they wash, iron and fold clothes. They do much of the darning, mending and sewing for the large household. Much of the children's clothing is made in the sewing-room by the girls. Every girl, at all bright, is expected to keep her clothing in repair. They are also taught to wash windows, polish floors, sweep, dust, and to make beds, etc. In the domestic science classes, the girls receive accurate instruction in ordinary house work—how to build a fire in the kitchen range, to brush the stove; to wash potatoes, to properly boil, fry, stew or bake them; to prepare other vegetables, to cook pork, beef and fish in the various ways; to make bread, biscuit and even cake; to lay a table, and to properly serve a meal. Some of the more advanced classes can cook an entire dinner. All this work is applied in the direct economy of the school. The pupils who do the best work in the classroom, are promoted to apply their acquired skill in the various kitchens and dining-rooms, to their great pride and satisfaction.

Some of the girls have developed a good deal of skill in cooking. Nearly all of them have ceased to regard kitchen work as drudgery. The older girls and women are of great assistance in the care of the feeble and helpless children. The instinctive love for children is relatively quite as marked with them as with normal women. A newly admitted child is eagerly adopted by some one. The affection and solicitude shown for "my baby" are often said to be quite touching.

This responsibility, it is claimed helps wonderfully in keeping the uneasy class of girls contented. Without this cheerfully given attention, the large number of children could not be well cared for without a considerable increase in the number of piad attendants.

The play grounds are equipped with swings, hammocks, tiltingboards, sand-gardens, croquet sets, etc., and each group of children spends part of every day in the playgrounds, accompanied by an attendant who directs and assists in their games and sports. In the living-room of each group, is a liberal supply of bright-colored building-blocks, picture-books and playthings of every sort. Each little girl has a doll of her own, and each little boy, a sled, wagon or cart. These toys are always accessible, and the children are encouraged to use them as much as possible. The playthings are not provided as luxuries, but as necessities if the instiution wants its defectives to approach the normal.

Indeed, it is said that to acquire alert minds, children must be alert. The young child can be alert only as his play-instinct is aroused. Shut out the play-instinct and you stunt the growth. Neglect to draw it out and you lessen the possibilities for strength. At least once a week, during the year, some evening entertainment is provided for the children, consisting of concerts, masquerade balls, minstrel shows, dramatic performances, stereoptican exhibitions, moving-picture shows, etc. These entertainments are gotten up by the officers and employees, usually assisted by some of the children. The moving-pictures especially, are greatly enjoyed by the children, and give them much real knowledge of the outside world. The most effective means of discipline, or sometimes for a misdemeanor or waywardness, is to send the child to bed while its fellows are enjoying one of these entertainments. This is more effective than corporeal punishment, which is not allowed. Each Sunday, services are held in the assembly hall, and consist of singing, Bible stories, simple illustrations and practical applications of the fundamental principles of morals and religion.

In the foregoing, I have endeavored to outline the most salient features of a properly constituted and conducted institution for the feebleminded, particularly as it relates to the care, treatment, and training of its inmates.

Turning attention to some of the general details in vogue in institutions designed for the feebleminded, I find that object-teaching in the broadest sense, is one of the prominent features of instruction. Objects, models, charts and other apparatus are employed for practical illustration. There are, however, other important features connected with such an institution in addition to its experienced and skilled medical officers and their specialized staff, including trained attendants and fieldworkers. Among these, is the school library for the teachers; especially one of standard publications on kindergarten and primary work, object-teaching, physical and manual training. There is also laboratory, dispensary, clinic, etc. It may be well to explain in this connection that field-work includes research of family-stock, to record environmet and parentage of the pupil admitted, or about to be admitted; also the number of feebleminded in the homes and at large, their condition, origin, and history back, at least, through several generations. This research work, in connection with the studies in the laboratory along approved lines of psychology, anthropology and clinical pathology, enable the institution to trace the individual defective from this stock origin, through his individual reactions, to institutional life in all its training features of mind and body, noting the modifying influence of such care and training on his growth and development.

According to the most experienced and skilled specalists on feeblemindedness—no one dares to say that there are no border land grades of mental defects that may not be conserved to the normal, if placed under an ideal life of training and treatment. This class is by no means small; but in addition, there is another class of defective children which should be given the benefit of the doubt—that backwardness does not always spell mental defect. To this "slight borderland—the twilight of the normal child mind—the trained pedagogue, psychologist, alienist and internist may well afford to devote their energies—not alone for the advantage of this group of backward children, but for the enormous flood of light such study will throw upon normal yet aberrant types of neurotic childhood."

To sum the matter up, institutions for the feebleminded, stand for the individualization of teaching and efforts at industrial and service training according to the scientific system evolved for the development of mental deficients. This system is over a hundred years old in Europe, and it is but in its infancy in the

United States. However, the progress already made in this direction by some of the more advanced Northern and Western States of the Union, is unparalleled even in Europe. The whole question of the causes of feeblemindedness needs a thorough detailed study from all standpoints. Happily, now that state care and segregation of mental defectives is in the ascendancy of sociological progress, we may look forward to the ages to come when these ills will have been so well prevented that there will be no need for them or for dependent, custodial or penal institutions.

This leads me,to the consideration of the subject of marriage. Can it not be said here with truth that "fools rush in where angels fear to tread." There ought to be a uniform marriage law, intelligently enforced, which would be of great value in regard to the propagation of normal children. It is an acknowleded fact that law to be efficent must follow public sentiment, not precede it, and that which should relate to the uniformity of marriage should be determined by the broadest and most intelligent opinion in advance of the creation of a law governing the same. Fortunately, we are awakening to the need of perpetuating normal and healthy human strains. More than this, we are recognizing the possibility of still futher inproving these strains. The right to be well-born has been denied many. Society can redeem this injustice only in part, and for that reason, the very best that intelligence and science can give is imperative in concerting measures in the behalf of the ill-born. To the large and fortunate majority who have been well-born, education and a higher social conscience must not only teach real improvement, but also to use it in behalf of their less fortunate brothers and sisters.

Graham Taylor graphically expresses the importance of this religion of the future—the great sociological movement for the benefit of the race and country in general, when he says: "Religion and society, the church and the community, can not be separated. Reciprocity is more and more sought after. The church needs the social spirit and method of the best work of the community; and social work no less needs the spiritual ideals and sanctions which religious conciousness only can bring to any and every kind of service. The common ground upon which this religious conciousness in social work and the social conditions.

ness in religious work, are being born anew. In the process, work for the individual becomes no less indispensable, but all the more effective, and work for the community becomes less socialized for being more personal and human." Both religion and society are beginning to realize more fully than ever, that there is no greater danger to the neighborhood than the presence in it of mentally defective youth, ready at any time to indulge their uncontrolled impulses. And there is no burden that will bear more heavily on charitable or correctional institutions in the future, than that of the feebleminded offspring of feebleminded delinquents and dependents. But aside from the fact that as such grow older, and as the bad habits which they so early form become fastened on them, and the further fact that most of them are sure to have descendants even more feebleminded than themselves—there is also a very great danger of normal children being led into immoral habits by companions who are not mentally responsible for their acts, or for the indulgence of their uncontrolled impulses, which often lead to harlotry and crime. That such defectives ought to be early segregated so that they can not propogate their kind, nor prey upon the community at large, cannot be gainsaid. That segregation costs money is admitted, but that it saves money in the end if often forgotten. The initial cost of segregation or colonization is doubtless great, but the saving by counteracting our present lax methods would be far greater. As tax-bills are not itemized, the ordinary citizen does not realize that he is at present paying for the unrestrained presence of the feebleminded. An added tax for their segregation would be an apparant, rather than a real increase, for through the segregation of defectives, the number of criminals, the number of prisoners, the cost of court trials, the demand upon private and public charity, would be largely decreased.

Of the class of drunken sots, that make many of our problems in intemperance, a very large number of them are feebleminded. Aside from any natural or acquired mental and physical defects, it is a disease in itself, and never fastens itself permanently upon either man or woman, unless he or she has fallen below par mentally. If this abnormality were confined only to the victims themselves, its effects would probably not be so lasting upon the community, but it has its visitations upon the unborn generations which make intemperance so abhorrent to all moral and right-thinking people. The same may also be remarked about prostitution, the largest per cent of the unfortunate victims of which, are girls and women of varying degrees of feeblemindedness. In this connection a prominent medical authority observes: "Let the public, young and old, be taught that seduction, one of the primary causes of the social evil—essentially in most instances, is due either to deplorable ignorance on the part of the man or feeblemindedness on the part of the maid. Its inevitable toll is physical and moral degeneration. It is fostered by mental and moral degeneracy, environment, starvation wages of feminine toilers, and extravagence. Let us come out in the open and fearlessly teach the plain people the plain home-truths about this largely preventable evil." Socially, let us put man on a level with woman, for where there is a fallen woman there is also a fallen man—yes, ten pure women to one pure man. The old saying that "an ounce of prevention is worth a pound of cure," is as true of preventing the ills to which human flesh is heir as it is of many other circumstances which concern human existence. Prevention is the best—but if that has not been used or has failed to be effective, then comes the next best thing to it, which is exemplified in the pithy adage of "A stitch in time saves nine."

Both these old adages are the quintessence of human philosophy and experience, and illustrate the best kind of insurance on the part of the individual, the community, and the state. This cannot well be gainsaid, for when practically carried out, it conserves human life and human affairs in the most effective form—improves morality, anchors Christanity more firmly, increases the general well-being, and saves the State the commission of needless wrongs, the people of much avoidable expense and thousands of heartaches.

Insurance of the nature and character that I have outlined, is the best of all, for it creates more demand for all other kinds. It represents no accident or loss account, but gain to all concerned. Its preminums are payable in manhood and womanhood regained, and its principal is invested in rehabilitated childhood, placed on the plane of normality and health. No one unfamiliar with the subject, can estimate the incalculable good which such insurance will effect when used to found, to organize, and to operate specific institutions for the elevation of the misguided, unfortunate, degenerate, irresponsible, and helpless humanity.

Thus, it will be seen that the feebleminded instutution is the very best insurance in which the state can invest, for it deals with the under stratum of the social structure for its amelioration and generation, working it upward to a higher plane of existence and development, and lessens pauperism, degeneracy and crime. The latter are the great *bete-noir* of all well-regulated communities. and give rise to endless perplexities in the government of states.

The desire of wise, right-thinking people the world over, is to better the conditions of human life—to uplift the mass of mankind—and not to force the weaker to the wall in order that the stronger may live. The latter are able to forge ahead and to maintain their allotted places in the body politic, while the former must have extraneous help, or they will continue to grovel in conditions worse than even death itself, for the latter puts an end to all their sufferings. If the duration of the influence on human life only concerned themselves, we might in the heartless language of conventionalism say: "Well and good, let them die and end it all!" But that is not the question, so much as the loss to humanity of so many of God's poor creatures, and the influence for evil which they may have upon the existing and coming generations of men and women.

The desire to elevate the average man and woman of the submerged stratum of society to a higher scale of progressive perfectness, is now being evidenced in Christanized communities more actively than in all the previous history of mankind. It does not rest in the good work for the fairly normal, but it seeks the debased adult, male or female, thus, pursuing hitherto untrodden channels of degeneracy and debauchery to their utmost lairs, whether it be in the home, in the dens of harlotry, on the streets, or in the institutions devoted to the care of the indigent, afflicted, degenerate or criminal.

Some of these most commendable agencies in their remedial or reformatory measures, begin with the state—involving government, law, politics, morals, and society in their varied and extensive functions.

We, however, in our sociological work, believe in beginning with the child, and through it, reaching the parents and the home, and through the latter the various ramifications of the community, ultimately reaching he state, which is but simply an entity of the delegated powers of aggregated communities of the people. Sometimes forgetting its subserviency to the latter, in its various branches, it is the cause of many social and political ills from which the people needlessly suffer. Its poor-houses, reformatory institutions, asylums for the variously afflicted, penitentiaries and chain-gangs, get their recruits largely from the feebleminded. All these things taken together, with the crude, imperfect, and oftentimes corrupt legislation, and the strained technical interpretations of the law by our courts—have tended somewhat to the increase of pauperism, degeneracy and crime, rather than to their prevention or abatement. This, in conjunction with the many avoidable ills of childhood, motherhood and womanhood generally—have engrossed the minds, and aroused the sympathies of humanitarians and publicists everywhere to the extent of making sociological action imperative.

The latter is now being taken in a thousand and one directions but all verging to the one primal point—the uplift of downtrodden humanity. Is it any wonder than that we have suffragette societies, settlement workers, motherhood associations, children's aid societies, combinations for the prevention of the white-slave traffic and of the spread of the white-plague—betterment associations, Juvenile courts, and numberless other organized utilities for the care, control, and training of the helpless and irresponsible degenerate, not to speak of numberless other associations devoted to the regeneration of society itself, and to the improvement of popular government.

In all these sociological upheavels, or rather in the sociological progress being made on all sides and in all directions—none have been more marked of late than that which concerns the care, treatment, and training of the feebleminded.

As we all know, or at least ought to know, the latter as a class, have dull perception, feeble power of attention, weak will-power, uncertain memory, and defective judgment. I has been clearly demonstrated that to attempt to arouse these dormant faculties by forcing upon them the abstract truths of ready-made knowledge, is utterly futile. The teaching must be direct, simple, and practical. The feebleminded child must be made to do, to see, to touch, to observe, to remember, and to think. These faculties must be utilized to the fullest extent, and according to authorative opinion, the varied and attractive occupations and busy work which are so important a part of the modern graphic methods of education for normal children, must be utilized for sub-normal children.

This is only one part, although a most vital one, of the great sociological work involved in the up-lifting of the child, the woman, and the man of abnormal characteristics, and through this means, forming the more perfect state, and the best form of government for the people. All these efforts, though radical and far-fetched as some of them may appear to unthinking eyes and ears--are nevertheless moveing toward the final good and betterment of human kind. They can never go backward, but must ever move onward—irrespective of illiterate conservation, untenable prejudice, illogical expediency, and the selfish interests of entrenched power for wrong-doing. All these things show that the world—that the common people who make it, and who do things, are trying to keep it moving along in fairly right channels. They are awakening more fully to the urgent demand for reformation, compensation and retribution, not only for the benefit of existing generations, but for those who are still unborn.

—Read before the Southern Medical Association at Jacksonville, Florida, on November 14, 1912.

SOCIETY TRANSACTIONS.

Department of Child Hygiene and Diseases of Children at the International Congress on Hygiene and Dermatology Held in Washington—The International Congress on Hygiene and Dermography which has just been held in Washington was from most points of view successful. The attendance was immense, there having been about 3,000 delegates present and no fewer than twenty-eight countries represented. Also the foreign representatives and delegates were for the most part very distinguished men and women, the consequence being that perhaps never before at a meeting of this character has been gathered together so great an assembly of persons noted in science and especially in the science of preventive medicine. Germany was in particular to the forefront in this respect, her representatives and delegates being more numerous, by far, than those of other countries, while in quality they shone as greatly as in quantity. Great Britain was well represented, for although the delegates from the United Kingdom compared unfavorably in numbers with those from Germany, in distinction and reputation they were fully their equals. Austria-Hungary sent some of her best known public health and scientific authorities and the pick of men in "French preventive medicine" were present. Practically all the civilized nations of the world were represented and a feature of the meeting was the large attendance of and the prominent part taken in the proceedings by delegates from the South American republics. The outstanding features, however, of the Congress was the keen interest taken by President Taft, who not only opened it in person but did his utmost to render it successful from the social as well as scientific point of view. A reception was given at the White House, at which the 3,000 or so delegates and ladies were received by President and Miss Taft.

National Department of Health.—In opening the meeting at the first general session the President made an eloquent and highly practical speech in which he advocated the establishment of a National Department of Health and suggested that this might be best accomplished by enlarging the powers personal and scope of duties of the *Public Health and Marine Hospital Service.*

Unfortunately the elements were not propitious during the meeting, for it rained almost incessantly throughout but, on the whole the arrangements were good. The only fault that could be found was that the program was of almost inordinate length. The papers were so numerous that no time could be allowed for discussion , in fact, in some sections the mere reading of papers took up more time than was anticipated. That time was not allowed for discussion was a grave error of judgement, for papers read without discussion and criticism are somewhat like a dinner without dessert. Indeed, intelligent discussion is quite as valuable as the papers themselves. It would have been as well then if papers had been more restricted or if they had been weeded out with more discretion. Excellent and adequate provision had been made for discussion, as books of abstracts of all the papers to be read were printed in several languages and ready for distribution before the holding of the first sectional meeting.

Child Hygiene.—

The section devoted to the consideration of child hygiene was the fullest and most diversified in papers of all the sections and was the most important and instructive.

Dr. Walther Ewald, Frankfort, Germany, read a paper on the *Campaign against contagious diseases of children* in wich he pointed out that all contagious diseases have either yielded to modern hygiene or the fight against epidemics or have at least been greatly affected by them, excepting infectious diseases of children, which in part only are true children's diseases. All cause great ravages among the children, so that far more die of these diseases than of all other infectious diseases combined. This state of affairs prevails throughout Europe. The terrible effect of contagious diseases of children is not merely disclosed by mortality statistics, but in a general decline of young people. The battle cannot be the same as in other infectious diseases where we have to proceed against bacterial opponents. Exciting and disseminating agents are rarely found in children's diseases. Dr. Ewald holds that in view of the large number of fatalities resulting from contagious diseases of children systematic measures are necessary.

The Management of Tuberculosis among school Children.—

This Subject was presented by Dr. Arthur T. Cabot, Boston, Mass.

After referring to the plan of caring for anæmic, under-nourished children in open-air rooms, or out-of-doors Cabot considers the cases of children with *open*,—declared tuberculosis. These, in his opinion, should be separted from other school children and should be constantly under close medical supervision. For them the recovery of their health is of the first importance and their schooling of secondary consideration. Well-to-do parents can give their children proper care at home with such schooling as may be wise, but for the children of parents who cannot afford this special care, some public provision must be made by which these children may be cared for and kept apart from other non-tuberculous children. Two ways have been devised for accomplishing this, first, Hospitals, second, Hospital Schools. Only a small proportion of parents will allow their children to go to a hospital and therefore while the hospital school affords less complete isolation than the hospital it is a choice between two evils, letting the children spread infection at school or at home, or of protecting the public to some extent. The hospital school with an adequate corps of nurses who follow the children to their homes and teach parents necessary preventive measures may accomplish a good deal in the way of preventing the spread of tuberculosis.

Child Hygiene by Women.—

A prominent and pleasing feature of the Congress which was likewise a sign of the times was the large number ofe xcellent papers read with regard to child hygiene by women. In fact, some of the best papers on this subject were contributed by women. Among these was one by Dr. Helen MacMurphy Toronto, Canada, on what medical inspection of schools can do for the teacher. Mrs. Frederick Schoff, Philadelphia, discussed parents' co-operation in promotion of a child hygiene pointing out that the co-operation of parents is essential in the promotion of child hygiene. Boards of Health too should co-operate and a department especially devoted to child hygiene should be created and given to a specialist on the subject.

Care of the expectant Mother.—

A very important paper read was that by Miss Ellen C. Babbitt, New York City, on the care of the expectant mother. Miss Babbitt drew attention to the fact that the work of caring for the expectant mother has but recently been undertaken in America. Now in Boston, in New York, in Baltimore, St. Louis, Chicago, and Buffalo and in many smaller cities the expectant mother is being watched over. The importance of breast feeding is emphasized during all the time that expectant mothers are under observation and the results are most gratifying in the very large proportion of those mothers who are able to nurse their babies either in whole or part. Statistics show that where the prenatal work has been systematically followed up there have been very few deaths among the mothers and very few cases of eclampsia. Further, there have been very few miscarriages and very few still births. The birth weight of the babies has risen above normal. According to Miss Babbitt money spent in this preventive work of getting help to the mother insures a healthy baby before birth, and that means a healthy baby after birth. A matter of supreme interest and moment in these days of industrialism almost gone mad is the effect upon infants of the employment of mothers in factories. Most of the British authorities, perhaps the foremost of whom is Dr. Sykes Medical officer of Health for the borough of St. Pancras, are of the opinion that such employment is prejudicial to the health of infants. However, Mr. Charles H. Verrill, Washington, D.C., read a paper in which he showed that as the result of investigations at Fall River, Mass., a factory town in which a very large number of women are employed in the factories, the employment of mothers had a very slitght effec on infant mortality, for 38.6 per cent of all deaths under one year of age were due to diarrhea and enteritis, while among children at home the percentage was 34.6. Mr. Verrill thinks that the casuses of the excessive infant mortality in Fall River are the mothers' ignorance of proper feeding, of proper care, and of the simplest requirements of hygiene. To this all other causes are secondary. Dr. George Reid Stafford, England, also read a paper on infant mortality in relation to factory labor and as a result of more extended investigations than those made by Mr. Verrill came to very different conclusions. Dr. Reid has found that the employment of mothers away from home has distinctly injurious effect on infant mortality, and seems to prove his point by comparative statistics. Dr. Javet, Lane Claypon, of London, England, read a paper on Infant Consultation which aroused much interest among those concerned in child hygiene. Another matter of the first importance in child hygiene, that of the hygiene of children's teeth was dealt with by Dr. William H. Porter of Harvard University, who laid down the following postulates for the preservation of children's teeth. First in all public schools there should be careful instruction given as to the nature of the teeth; their uses; the diseases wich attack them, and the methods for preventing or diminishing diseases of the teeth. Children and their parents should be taught that the cleaning of the teeth and their thorough use upon hard foods will much reduce and prevent decay. School teachers must assume an oversight in regard to their pupils' teeth. Second. Examinations of the teeth of all school children should be made at least twice a year. Third. Establish in school buildings dental clinics in charge of dentists paid by the municipality. Add the services of a dental nurse if the law makes them possible. A small fee should be charged in every case. Fourth. Begin work upon school children before serious decay has occurred in their permanent teeth and continue the supervision and necessary repair work up to the end of the twelfth year.

Poliomyelitis.

Perhaps, the most important meeting of the Congress was that of the joint sections *hygienic,microbiology and parasitology,*and the control of infectious diseases. This meeting was really a symposium on poliomyelitis by some of the most renowned authorities of the world. For example, Dr. Netter of Paris, dealt with the etiology of poliomyelitis and prophylactic measures, Dr. Francis Harbitz of Christiana, Norway, discussed epidemic poliomyelitis in Norway.

Sanitary measures against poliomyelitis were debated by M. Levaditis of the Pasteur Institute, Paris, by Dr. Karl Landsteiner of Vienna, by Dr. Simon Flexner of the Rockefeller Institute, New York City. The most notable events of this symposium, however, was the representation of an epitome of the results arrived at by the investigators deputed by the State Medical Institute of Sweden to furnish a report on epidemic infantile paralysis. This epitome was given by the principal investigator Prof. Alfred Peltersson of Stockholm and dealt with the modes of infection of poliomyelitis and its prevention, the symptomatology and pathology of poliomyelitis in monkeys and the epidemic of poliomyelitis in Sweden in 1911-1912. Prof. Peltersson made the very important announcement that the exhaustive and protracted investigations in Sweden had brought out the conclusion that the naso-pharynx is the seat of entrance of the infection. While attaching far more importance to direct transmission and to the naso-pharynx as the seat of entrance, opinion is Sweden admits the possibility of indirect transmission of infection by insects and inanimate objects. Experiments with flies produced negative results, but Josefron produced experimental poliomyelitis with saline extracts of a hankerchief and embroidery work, which had been used by patients actually ill, even after the material had been allowed to dry for some days before making the extract. These facts are in keeping with previous observations by other investigators that the virus could be found in dust, and remain active after thirty one days in sterile milk. The Swedish investigators are of the opinion that fleas and other blood sucking insects may be of importance in house epidemics but play no great part in the production of extensive outbreaks. The gist of the investigations made by Pettersson and Coneagues is that poliomyelitis is chiefly disseminated by direct transmission and consequently the moral to be drawn from these conclusions is that poliomyelitis should be made everywhere a notifiable disease and that isolation of those affected should be rigidly enforced. Dr. M. J. Roseman announced that he had made the discovery by means of experiments on monkeys that polimoyelitis is transmitted by the bite of a species of stalle fly which has become infected, of course, the conclusions of Pettersson and Rosenau conflict somewhat for, if Rosenau be correct, the fly is an important factor in the dissemination of the disease; while if Pettersson and the other Swedish investigators be right, the main means of spread is by direct transmisson and the fly is a negligible quantity. Enough, however, appears to be known to warrant the the statement that poliomyelitis should be made a notifiable disease and that vigorous precautionary measures sould be instituted.

Clinical Congress of Surgeons of North America, held at Waldorf Astoria.—New York, November 11th to 16th.

This although but the third annual Session of this Congress was extraordinarily successful. In fact the meeting was almost too successful, that is to say, the attendance was enormous, 2,600 medical practitioners having registered, and in consequence the gatherings at which papers were read and discussed were over full as were also many of the clinics. The manner in which New York received the visiting surgeons was convincing proof that the city is truly one of the greatest surgical centers of the world. Taking everything into consideration it might be no exaggeration to say that New York is the greatest surgical center. The wealth of material is probably hardly equalled anywhere. The population of New York is more cosmopolitan than that of London which alone exceeds it in size and its nature is better adapted for providing good clinical material than is any other place because it is being added to always by immigrants who are likely to supply all kinds and varieties of diseases. Moreover, the medical profession of New York have seized their opportunities admirably. The clinics of New York on the whole, are not excelled, probably not equalled anywhere. It is well sometimes to have the opinions of skilled outsiders on such a matter and such opionins were forthcoming from Mr. Arbuthnot Lane, one of the most distinguished English surgeons who at a banquet given by the University Club of Brooklyn to 300 physicians and eminent visitors, just before the opening of the Congress said that he had continually urged his students of the St. Thomas Hospital Medical School London, to come to America to study because of the excellent clinics here which he pronounced the best in the world. He said that while in England they had every possible advantage and an unlimited abundance of material on which to work, their surgeons were behind those of America because the training of Englishmen made for orthodoxy and the respect for tradition while here men of all races and from states and environments radically different, were able to express themselves. Allowing for the fact that Mr. Lane's speech was after dinner and that he was an honored guest and therefore somewhat apt to praise his hosts indiscriminately there is no doubt that there was much truth in the statements and that the surgeons of this country and of New York City have every right to pride themselves on their skill and their readiness to divest themselves of the shackles of tradition.

Intestinal Stasis.—

The headquarters of Congress were in the Hotel Waldorf-Astoria and all the meetings at which papers were read, with the exception of one, were held in the magnificent ball room of the hotel, on the evenings of November 11, 12, 13, 14, 15. On the evening of Nov. 13, some very excellent papers were read, dealing with intestinal stasis really a symposium on enteroptosis a condition which not infrequently is present in children. Dr. Richard P, Smith of Grand Rapids, Michigan, read a paper on enteroptosis in women.

He described two types of enteroptosis congenital and acquired. The congenital type consisted of those who were lacking in vitality from infancy and showed defective development, frequently of the frame work of the body as well as of the visceral organs. Such women had been frail from childhood, and during childhood and adolescence had gradually acquired the falling of the organs, with marked changes in the configuration of the chest and often with the same signs of muscular weakness exhibited by those women who had given way from child bearing and hard work. As the prolapse of the abdominal organ is generally the result of malnutrition, and as children are never actually born with it Dr. Smith concluded that the trouble could be largely prevented by intelligent efforts made to improve the nutrition of the frail children, who if allowed to continue in the way they were going would become invariably weak, nervous enteroptotic women, unable to meet the strains of life necessarily placed upon them. The moral to be drawn from this paper from the therapeutic point of view was that in the first instance weakly children should be guarded against becoming enteroptotic by feeding them with good nourishing food, by letting them have plenty of fresh air and exercise and indeed by inducing them to lead as healthy a life as possible. When the condition is once established it must be met by rest, fresh air and intelligent feeding and by a lightening of the cares and responsibilities of life. Dr. Smith showed lantern slides illustrative of the conditions at various periods of life.

Chronic Intestinal Stasis.—

Mr. W. Arbuthnot Lane of London, then read one of the best papers of the meeting discussing intestinal chronic stasis. Although chronic intestinal stasis is more frequently by far a condition encountered in the adult than in the child, the seeds are very often laid in childhood. Mr. Lane was one of the first to begin the study of intestinal stasis and was for some time laughed at by the profession for his peculiar views. Constipation and especially prolonged constipation plays an important part in the production of many pathological states. The poisons absorbed from the intestinal tract damage tissues and reduce the resistance of the various organs. Intestinal stasis, facilitates the multiplication of bacteria so that these extend beyond the bounds of their normal habitat and thus produce infection of organs directly connected with the intestines. Furthermore the toxines being absorbed by the blood stream are carried to distant tissues and produce progressive degenerative changes. Diseases of the liver, heart, kidneys and other eliminative organs are the evidence of overwork due to the intestinal stasis and are not necessarily distinct diseases. Mr. Lane even believes that such remote diseases as cancer, tri-facial neuralgia aside from the malnutrition and muddy skin so commonly met with may be ascribed to intestinal stasis. He has obtained excellent results in cases of this condition by short-circuiting the bowels in such a manner as to remove the obstruction and has cut out a large portion of the absorbing surface, thus aiding in the prevention of auto-intoxication. Mr. Lane showed on the screen the way in which obstruction could be gauged by bismuth and the X-ray. Dr. John F. Clark of Philadelphia expressed much more conservative views with regard to the indications for such operations and thought that operation should only be resorted to when all other methods had failed. Dr. Joseph E. Goldthwait of Boston, is an orthopedist of wide experience in treating deformities, such as round shoulders, changes in spinal configuration, and flat collapsed chest, which deformities unvariably accompany visceral prolapse, and which he believes are largely causitive of it. He believes that deformities of this character should be properly treated and their recurrence prevented before operative procedures are undertaken. Dr. Goldthwait laid great stress on the management of the weakly child, the one who is so by hereditary, and who exhibits the most marked tendencies to the deformities with consequent enteroptosis later on. When it was considered that one child in every five had a free mesentery and might become enteroptic the problem assumed large proportions. They should begin with the school children who had this condition and were slow and dull. By proper attention to these children their conditions might be greatly improved, and in many instances might be entirely overcome and thus the defect would not be accentuated and handed down. Dr. Goldthwait meets such deformities by well directed special exercises and in some instances by wearing of apparatus which will lend support to the structures otherwise inadequate to maintain the body in a normal attitude. He, like all other far seeing men who recognizes that nowadays the weaklings are preserved to hand down their weaknesses and also appreciates the fact that they must be well taken care of in order that an even fairly vigorous race may survive.

Infantile Paralysis.—

It would be impossible within the limits of a short report such as this, to attempt to describe the proceedings at Clinics which after all were the true raison d'etre of the Congress Suffice it to say that the clinical demonstrations in New York almost overpowered the visiting surgeons, so numerous were they and of so great practical interest were many of the operations. Bone transplantation excited much attention and in several of the hospitals this method was demonstrated. Dr. D. Frauenthal exhibited at the Hospital for Deformities and Joint Diseases Madison Avenue and 123rd Street, large number of cases of the after results of infantile paralysis that are now being treated daily by means of electricity, massage, and muscle education with satisfactory results. At Randall's Island a series of operations were performed on mentally defective children taken from public schools. Something like 175 clinics with 8000 demonstrations were offered daily while the congress was in session and the only complaint was that it was an embarrassmente de richess, as the visiting surgeon had much difficulty in making up his mind where to go. On the whole the Congress was a huge success, and if it has a fault it was that it was too huge. One meritorious feature of the Congress was that while the clinical work represented the utmost developmnent of surgery, every effort was made to avoid sensational and distorted reportso fits proceedings. The work that was done was only that which is being done every day in the hospitals of New York and of which the general run of the people take little or no notice. At a business meeting of the Congress held on November, 16th a very important movement was made. Dr. Franklin Martin of Chicago, the general secretary commended that a special College of Surgeons be established in this country, with the power to grant a supplementary degree to the degree of medicine, which should be a fellowship in the proposed College. In other words, he recommended the granting of a post graduate degree similar to the F.R. C.S. (Fellow of the Royal College of Surgeons) of Great Britain. A Committee was formed to consider the proposal. This projected standardization of surgery seems to be a move in the right direction and should tend to protect the public, and Pediatrics would gladly urge the consummation of Dr. Martins innovation as a step in the right direction.

A DEPENDABLE BROMIDE PREPARATION.

"Why is it," asks a physician of high standing, "that I get results from the use of Peacock's Bromides that I never can from ordinary extemporaneous preparations of potassium or sodium bromide? As a matter of fact, I find that I can produce sleep and accomplish sedation with surprisingly small doses of Peacock's Bromides and never encounter any ill effect. What makes this product so effective?"

The explanation is a very simple one.

The bromides in Peacock's Bromides are made especially for the product, and salts of their high purity are not found in the open market. The imitations of this preparation, therefore do not imitate, except in physical properties, for ordinary preparations have to be made from inferior salts. A trial consequently never fails to demonstrate a difference between its action, and that of substitute or extemporaneous preparations. Thus, an eminent neurologist wtries: "I am convinced that Peacock's Bormides is the purest preparation to be had, and moreover, that it gives most satisfactory result and is attended with fewer symptoms of bromism than any other with which I am familiar. I have used it extensively in neuroses during my connection with the State Asylum for the Insane, as well as in my private practice, and in the Clinic of the University and am, perhaps, fairly well qualified to pass judgment."

INTESTINAL TORPOR.

Few ailments coming within the daily notice of medical men are more difficult to correct than the constipation that afflicts those of sedimentary or lethargic habits. These patients are usually heavy eaters and engaged in pursuits that too often require excessive mental effort and a minimum of physical exercise. While at first, little or no discomfort may be felt, as time goes on, the depressing influence on all physiologic processes produces more or less derangement of the metabolism, and faulty elinination dams back into the system poisons that work still greater mischief. Soon these patients become confirmed "toxemics" from the constant autointoxication that results from the retention of perverted and waste products. All manner of symptoms appear, the nervous system particularly showing the greatest variety ranging from simple neurasthenia to the gravest types of melancholia. Indeed, the opinion is growing that defective elimination of bodily wastes is one of the most important factors in the development of many of the mental as well as nervous disorders, that are apparently on the increase.

The great importance, therefore, of preventing waste accumulation by clearing out the avenues of elimination cannot be over-estimated.

Among the means that scientific study and research have brought forward for bowel elimination, Prunoids certainly hold a unique place. This remedy presents advantages that will appeal at once to both patient and physician. Although exceedingly active, Prunoids never set up undue peristalsis; nor do they ever exert a harsh drastic action on the intestinal mucous membrane. Griping, pain and discomfort are conspicuous by their absence and the effects produced are mild, pleasant but very complete and satisfying. In fact, no other cathartic or purgative at the command of the profession produces more complete and perfect evacuation of the bowels, with less discomfort and distress. The reason for this is evident as the action of Prunoids is studied. Their whole influence is physiological, that is they act by increasing and promoting natural processes, never by supplanting them. With this so true, it is not surprising that Prunoids never give rise to reactionary constipation, as is the case with most other laxative remedies. Used properly for a reasonable period, Prunoids may be relied upon to restore the bowel functions, and afford pronounced relief from intestinal auto-toexmia.

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A Practical Medical Dictionary of Words Used in Medicine with Their Derivation and Pronunciation, Including Dental, Veterinary, Chemical-Botanical, Electrical, Life Insurance and Other Special Terms; Anatomicis, Tables of the Titles in General Use, and Those Sanctioned by the Basle Anatomical Convention; Pharmaceutical Preparations, Official in the United State; and British Pharmacopœias and Contained in the National Formulary; Chemical and Therapeutical Information as to Mineral Springs of America and Europe, and Comprehensive Lists of Synonyms. By Thomas Lathrop Stedman, A.M., M.D., Editor of the Medical Record. Second, Revised Edition. Illustrated. New York: William Wood & Co., 1912. Pp. XI-1028. (Price, $4.50 plain; $5.00 indexed.)

It is quite a compliment to the author that the second edition of his dictionary hasbeen called for within a year. It is, no doubt, a great satisfaction to Dr. Steadman, for his book to have been so well received. In our review of the first edition about a year ago, we gave it our hearty commendation, and we do so again, with good grace, for this new edition is more than a reprint, in fact, it is almost an entirely new work. The few mistakes and errors that have been pointed out by critics, have received due consideration, and in this second revision a great deal of new matter has been added which has increased the number of pages from 988 to 1016.

One would have thought a few months ago, that there was no room on the market, for another medical dictionary, yet it must be admitted that none of them is free from serious defects. This newest one written by a highly cultured scholar, who has had great editorial experience, and who had made it a point to improve upon the short comings of existing books, will, it is believed, justify its existence by its merit.

In this work will be found the derivation, pronounciation, and definition of upwards of 60 000 words. It gives the derivation of all words, (when known) from the Anglo-Saxon as well as from the Latin and Greek. Pronunciation is indicated whenever it is not well evident, and accent marked in all the main titles and most of the sub-titles. That improvement may be made in so technical a book, as a medical dictionary, is shown by the excellence of this publication, which has just been sent out by the publishers,. We again commend this dictionary to authors, to writers, and physicians. We congratulate the author and look forward with interest to the appearance of the third edition

Diseases of the Stomach, Intestines, and Pancreas.

Diseases of the Stomach, Intestines, and Pancreas. By Robert Coleman Kemp, M.D., Professor of Gastrointestinal Diseases, New York School of Clinical Medicine. Second edition, revised and enlarged. Octavo of 1121 pages, with 388 illustrations. Philadelphia and London: W. B. Saunders Company, 1912. Cloth, $6.50 net; Half Morocco, $8.00 net.

The particular feature of Kemp's Treatise, is the detailed presentation of those methods in diagnosis and especially treatment together with the essentials of pathology that are of value to the general practitioner. There is clearness and simplicity of description while the author retains the necessary technical details and scientific accuracy. The second edition is one-third larger, partly from the addition of the new part on diseases of the pancreas which is very complete, as is noted in connection with acute and chronic pancreatitis.

Notable additions of new material are found under examinations of the esophagus, including esophagoscopy; Boas' dry test meal; Chittenden's views on low protein diet, presented in full; feeding before and after Gastro-enterostomy; achlorhydria hemorrhagica gastrica; the treatment of ulcer; acute and chronic dilatation, where in the obstructive types surgery is urged; enteroptosis, the treatment of which is very complete; tests of intestinal functions, especially recommended where there may be pancreatic disease; senile dyspepsia; acidosis; infection with B. coli, which is one of the most noteworthy chapters; typhoid fever, including paratyphoid and Brill's disease, togeter with the newer dietary treatment; simple duodenal ulcer, which is entirely rewritten and very complete; and appendicitis and diverticultis which are considered at unusual length.

The tables of differential diagnosis introduced throughout the book are of real value while the use of the X-ray illustrations greatly adds to the present edition.

The unusual scope of Kemp's Diseases of the Stomach. Intesttines and Pancreas as well as the method of treatment, takes it from the category of works adapted merely to the specialist and makes it a most desirable volume of the shelves of both physician and surgeon. Every practitioner will profit by the author's diligent and intelligent selection of material from the large growing field which he has most successively covered.

The second edition of Kemp's diseases of the stomach, intestines and pancreas may be recommended as a valuable text book for practitioners and as one of the best works written on those diseases. The book is excellent as regards printing and binding and the illustrations are in keeping with the general high character of the work.

Diseases of Children.—A Practical Treatise on Diagnosis and Treatment for the Use of Students and Practitioners of Medicine, by Benjamin Knox Rachford, M. D. Professor of Diseases of Children, Ohio-Miami Medical College, Department of Medicine of the University of Cincinnati: Pediatrician to the Cincinnati Hospital, Good Samaritan Hospital and Jewish Hospital; Ex-President of the American Pediatric Society and Member of the Association of American Physicians. New York and London, D. Appleton and Company, 1912.

The author in his preface states that this volume is an attempt to present to practitioners and students of medicine a practical clinical treatise in diseases of infants and children He briefly outlines pathological findings and avoids unnecessary etiological discussions and gives due attention and sufficient space to differential diagnosis, and his treatment is very full and satisfactory. The author dwells in detail on the physiological of disease in infancy and childhood and makes a very practical application of these facts, both in the prophylactic and curative treatment of these diseases. The volume is well bound contains very good illustrations and closes with a splendid index which adds to the value of the work.

Practical Medicine Series, Pediatrics, edited by Isaac A. Abt, M.D., Professor of Pediatrics, Northwestern University Medical School, Attending Physician Michael Reese Hospital. With the collaboration of May Michael, M.D.. **Orthopedic Surgery**, edited by John Ridlon, A.M., M.D. Professor of Orthopedic Surgery, Rush Medical College with the Collaboration of Charles A. Parker, M.D. Series, 1912 $1.25 Year Book Publishers, 180 N. Dearborn St., Chicago, Ill.

This handy little volume contains a valuable collection of excerps of advances made during the year 1911 in diseases of children and Orthopedic Surgery. The volume opens with a dissertation on diseases of the new-born followed by chapters on hygiene and dietetics, and the more importan diseases of later infancy and early childhood are also very cleverly portrayed in the department of Pediatrics, which is clearly and succinctly writter by Dr. Abt with the assistance of Dr. Michael. The section of the work devoted to Orthopedic Surgery covers very satisfactorily the diseases of the hip joint, the spine, and all of the larger joints, as well as infantile paralysis and a miscellaneous group of affections and injuries, all of which are important to any and every physician who assumes to treat diseases of infancy and childhood. The book is well arranged for ready reference having a splendid index. It is an important addition to the Year Book Series.

The Vanishing Man, a Detective Romance, by R. Austin Freeman, Author of "The Red Thumb Mark," etc., New York, Dodd, Mead and Company, 1912.

The story of the Vanishing Man is one that we can heartily commend to our colleagues without reservation. It is the most ingenious and entertaining detective romance. It is a very clever intricate and original plot like all stories it has a charming love story in it which is told with some humor though toward the end it is somewhat "creepy and uncanny," as love stories go. There is no doubt, in the mind of the reviewer, but that the work is from the pen of a physician who is at the same time an adept student of Egyptology the science of which he uses with considerable skill. No one but a graduate in medicine could write such a book. The story takes captive the imagination at the beginning and the fascination goes to the end. And it is a story to pique the reader who is a good guesser and takes pride in that fact. For in the last analysis one of the oldest of human industries and one of the newest are brought into juxtaposition—an idea so bold in conception and so perfectly worked out that "The Vanishing Man," deserves to be called the exceptional detective story.

Sex Education, by Ira S. Wile, M.S., M.D., New York, Duffield and Company, 1912.

The author in his preface makes it plain that the Student of sex hygiene is greatly in need of some form of instruction on sexual topics. The subject has been added to the curricula of certain high schools and colleges, but insufficient thought has been spent upon the necessity of similar instruction in the homes. Parents, from a sense of false modesty or what not, feel themselves incapable of assuming the roll of teacher in this important branch of knowledge. No doubt in the minds of the average parent there is a willingness in spirit but a lack of plan in procedure. It is for this purpose that the author has prepared this little volume, hoping to banish the difficulties on the part of the parent and suggest a plan for developing the course of instruction and as such this little work is offered as a program for self-instruction.

Auto-Intoxication and Disintoxication, an account of a New Fasting Treatment in Diabetes and Other Chronic Diseases, by Dr. G. Guelpa (Paris) Translated by F. S. Arnold, B. A., B. CH. (Oxon) With an Introduction by the Translater and a Chapter on the Use of the Method in the Treatment of Morphine Addiction, by Oscar Jennings, M.D. (Paris). Cloth Binding, $1.25 Net. New York Rebaman Company, 1123 Broadway.

This work of Dr. Guelpa may be referred to as "starvation and purgation" in the relief of disease. The author advances some new thoughts which have given him remarkable results combining periods of abstinence and purgation in diabetes and other chronic diseases. The importance of auto-intoxication as a factor in the evolution of many states of chronic disease is becoming more and more widely recognized. According to the theory of Dr. Guelpa diabetes is preeminently expression of auto-intoxication and his method of three days abstinence purgation treatment removes sugar from the urine completely. Any physician interested in the treatment of diabetes will find this little volume full of new thought and well worthy of his most careful study. Drug addiction and alcoholism are considered much from the same stand point of reasoning. The translator has apparently done his work well and presents the English reader a commendable volume.

The Physician's Visiting List (Lindsay & Blakiston's) for 1913— Sixty-second year of its Publication. Philadelphia. P. Blakiston's Son & Co., 1012 Walnut St.

The above Visiting List hardly needs an introduction to our readers, for it has been the standard pocket record with the profession for more than a half century. Its binding is handsome and durable, and its size handy and compact. It has 24 pages of printed matter, which includes a complete dose-list, tables, antidotes and emergency information. It contains calendar, pocket and pencil. Its ruled pages will allow an entry of 25 names per week, with special memoranda opposite each entry. It has ample pages for all other memoranda under appropriate headings. The price is $1.25 net.

New Aspects of Diabetes, Pathology and Treatment, by Prof. Dr. Carl von Noorden, Professor of the First Medical Clinic, Vienna Lectures Delivered at the New York Post-Graduate Medical School, New York. Price $1.50 Net, New York E. B. Treat & Co., 1912.

Prof. von Noorden has recently delivered a Course of Lectures at the New York Post-Graduates Medical School which have been put into book form by the enterprising publishers F. B. Treat & Co. Dr. Von Noorden begins with "Source of Sugar" in the diabetic patient. Next he considers "The Rise in Calorific Production and its Causes." He then takes up "The Control of Sugar formation and its Disturbances" and finally gives his views of the "Theropy of Diabetes" closing with "Acetornuria, its influence on the treatment of Diaberes Nutitus.

Prof. Von Noorden has given the American profession the latest advances in theoretical chemistry and their application to the studies of physiology and pathology of nutrition in diabetes. He particularly lays stress upon the questions of pathological chemistry and to some of the aspects of the Theory of the disease. During the past few years many new questions concerning diabetes have been worked out, all of which he presents in a clear and foreceful manner in this course of lectures. Every physician interested in daibetes should purchase this little book and read it with care.

Diabetic Cook Book, By Anna Colby Knowlton, Cloth Binding, $2.00 Net, Postage 10 Cents Extra. Anna Colby Knowlton, Publisher, Englewood, New Jersey, 1912.

On glancing over the recipes incorporated in this little book, we observe an infinite variety of bread, cakes, and desserts which a diabetic patient can take with comparative impunity. One finds forty-one recipes for bread, biscuits, muffins and griddle cakes; twenty-two for cake: sixty-five for desserts: six for sauces: five for pies and pie crusts, and three for ice cream. The nurse for a diabetic patient will find a new kind of bread or muffin every morning for six weeks and a different dessert for dinner every day for sixty-three days. The author avows that the recipes given in this volume have been recorded from practical experience and that each one has been repeatedly verified. This book ought to be very serviceable in any family that has a diabetic.

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